12 things you need to know about software-as-a-service
Software-as-a-service will probably save you money and lead to faster implementation, but it's still not always a no-brainer. **Page 18.**

Overcoming agent software overload
Security, management vendors challenged to address issues. **Page 30.**

NETWORKWORLD

The leader in network knowledge ■ www.networkworld.com August 6, 2007 ■ Volume 24, Number 30

The regulatory dance
With so many state, federal and even international regulations on the books, how does a security manager prepare for auditors? Find out. **Page 10.**

Behind the scenes at eBay
Computing guru Paul Strong shares online auctioneer's outlook on next-gen data centers. **Page 14.**

Massive server consolidation
IBM said it will consolidate nearly 4,000 PC servers onto mainframes running Linux in a move that will save the company $250 million. **Page 16.**

The case of the great hot-site swap

BY JOHN COX

A Maine college and a California university are reaching across the continent to share hardware and software in a joint disaster-recovery effort that could be a model not just for other schools but also for businesses.

You can think of it as the lobster and sushi project.

Besides creating recovery sites at each other's campuses, the network staffs at Bowdoin College in Brunswick, Maine, and Loyola Marymount University (LMU) in Los Angeles also are creating a set of practices that can guide other cooperative IT ventures between different organizations.

Two identical recovery sites, based on blade servers and VMware's virtual server software, are being assembled on each campus, linked to the Internet with a secure VPN connection over a 30Mbps link. Each campus will host and manage hardware and software bought by the other institution. If a disaster or outage hits either school, the hosting campus will initialize the other's hot site and run it for the duration of the emergency. IT staff on the stricken campus will access what is in effect

See Recovery, page 42

Philadelphia rolls out mega-municipal Wi-Fi mesh network

EarthLink gets green light to blanket 135 square miles with Wi-Fi coverage. **Page 32**

Wireless mesh deployment moving at rapid pace, despite challenges. **Page 34**

Cheese steak, Liberty Bell, Wi-Fi: EarthLink launches marketing blitz. **Page 38**

Low-cost Wi-Fi offered to city's poorest residents. **Page 40**

Video: Twisted Pair Keith Shaw and Jason Meserve take you on a virtual tour of Philadelpia's Wi-Fi hot spots. **Go to www.nwdocfinder.com/9823.**

Chime in: If you're in Philly, log onto the EarthLink service and share your experience. **Go to www.nwdocfinder.com/9822**

STEVEN VOTE

VIRTUALIZATION, YES.
PALPITATIONS, NO.

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GOODBADUGLY

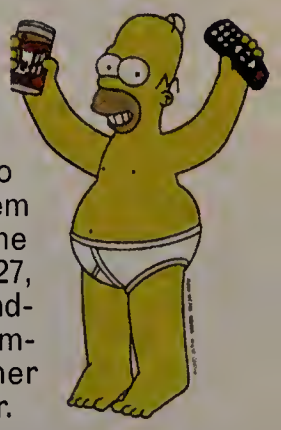
Sun surprises

Sun Microsystems has reported a swing to a fourth-quarter profit after a loss last year on essentially flat revenue. Sun posted net income of $329 million on revenue of $3.8 billion in the three months ended June 30, reversing a loss of $301 million in its fiscal fourth quarter of 2006. The company credited cost-cutting for part of its swing to profitability. Sun trimmed $487 million in expenses in the fourth quarter.

Waiting for Wi-Fi in San Fran

The next crucial votes on San Francisco's municipal Wi-Fi proposal will be delayed until next month while chosen contractor EarthLink becomes increasingly skittish about building wireless networks for cities. After a request by EarthLink, city officials plan to push back votes well into September.

Beware Homer Simpson in his underwear



Spammers are jumping on the success of "The Simpsons Movie" to trick e-mail users into validating their addresses, so they then can send them more spam. Since the movie opened on July 27, spammers have been sending messages with an embedded picture of Homer Simpson in his underwear.

Editor's note: Continue the discussions online. Use the DocFinder URL after each writer's name to join the discussions in which they originally posted their comments.

Computer literacy is hard

I read the letter from Mr. Steve Margison (www.nwdocfinder.com/9838) with great interest, especially this line: "We have a country heavily dependent on computers, and just as totally illiterate."

I think he's right but my question is, what can we do about it? My own story may illustrate the problem that many people have educating themselves about computers.

> "Where can the average intelligent adult find beginner-level computer information presented in a logical, step-by-step fashion?"

After 18 years as a full-time homemaker, in January of this year I was fortunate enough to get a part-time job offer that involved (among other things) looking after a small number of computers used by adult continuing education students. In the busy whirl of being an at-home wife and mother, much of the computer revolution had passed me by, although I knew how to e-mail and how to buy things online. But I needed to know how to download software and monitor the computers. So I immediately went to the library, the bookstore and online to find out everything I could.

Mr. Margison might be surprised to know that all of the books, even the well-known ones, assumed a level of knowledge I didn't have. Diodes . . . software platforms . . . networks . . . [were] all referred to early on with little or no explanation. So I got my hands on some textbooks used to teach technology to adults, but once again they seemed to be written for someone who already knows what a server is and how it works (for example). The courses available at a local community college were all very application-specific; I didn't need that. I wanted to know how it all worked, how it all fit together. Online, the courses were expensive and out of date. Dictionaries were contradictory and confusing.

I finally made progress by fixing on a concept and reviewing it across all the different sources: books, online, Wikipedia and bugging friendly types in the IT department. But it is a patchwork process.

So my question to Mr. Margison and to anyone who is interested in computer literacy is this: Where can the average intelligent adult find beginner level computer information presented in a logical, step-by-step fashion? A source that assumes the reader knows very little to nothing about computer technology? And if the graphics actually illustrated the concept under discussion, that would be a dream come true.

Once that is available you'd be surprised how many people would want it. I know I still do.

Lisa Tate
Houston, TX
www.nwdocfinder.com/9839

P2P: What is it good for?

Re: IM attacks up nearly 80%, Akonix says (www.nwdocfinder.com/9840). What company needs to allow programs like Limewire, Kazaa, ShareBear or any of the other P2P programs? Why not just block all P2P traffic and let people infect their systems at home if they want illegal music or file downloads?

Anybody have a legitimate use for P2P in an office environment?

Thomas J. Raef
www.nwdocfinder.com/9841

Don't call it forensics

Re: A push to standards for network forensics (www.nwdocfinder.com/9842). The security world appears to have co-opted the use of the term "forensics" for its own purposes. "Forensics" is a legal process, not a technical process. Few corporate IS shops concern themselves with ensuring that evidence gathered is preserved to be presentable in a court of law; in fact, the first priority is to contain the threat, which, by definition, implies the alteration or even destruction of potential legal evidence.

As a digital forensics specialist whose primary focus is evidence collection, analysis and presentation for legal purposes, I'd prefer to call "network forensics" what it really is: incident response.

Anonymous
www.nwdocfinder.com/9843

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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BLOGOSPHERE

■ **Cisco's lame reaction to Google's wireless bid.** Cisco Subnet blogger Brad Reese blasts Cisco's top Washington, D.C., counsel for her "lame" thoughts about Google's bid for the 700MHz spectrum auction. He writes: "Mary L. Brown — former in-house counsel for prebankrupt and scandal-plagued MCI — is leading the Cisco effort as the Washington, D.C.-based director of technology and spectrum policy. In a woefully embarrassing, lazy and just downright lame entry on the Cisco High Tech Policy Blog, Brown has thoroughly convinced me that Google deserves to win this match." **www.nwdocfinder.com/9824**

■ **Notebooks and native hard-drive encryption.** Seagate, ASI Computer Technologies and Wave Systems created the C8015 notebook with native hard-drive encryption, writes Keith Shaw in his Cool Tools blog: "If the notebook is lost or stolen, no worries — the data is encrypted on the hard drive, and there's no way to access the data without the user's password (no backdoors, recovery tools or services available to retrieve it). A few weeks ago, Seagate sent me the C8015." In his review he finds that configuring the encryption was easy, but the notebook's password protection scheme performed in odd ways. **www.nwdocfinder.com/9825**

■ **Microsoft's Identity Management platform.** Microsoft Subnet blogger Tyson Kopczynski has been granted a preview of Microsoft's Certificate Lifecycle Manager. And guess what? He likes it. In the first of a two-part blog entry, he cites the good things about CLM: "I think that purchasing Alacris (idNexus), rebranding it CLM and then tying into Identity Lifecycle Manager was the right step for Microsoft. After all, digital certificates are a cornerstone to representing a person's identity within an organization. And from a functional standpoint, Windows Certificate Services has always lacked an easy method for managing a certificate's 'life cycle.'
www.nwdocfinder.com/9826

■ **Witty videos reveal security challenges.** Layer 8 has found a source for clever videos that remind users to make security Job 1: "That's at least part of the message delivered by the six winners announced today of a computer security-awareness video contest, as part of a national campaign to raise awareness of and increase computer security awareness."
www.nwdocfinder.com/9827

IT VIDEO

INTERVIEWS, THE COOLEST TOOLS AND MORE

COOL TOOLS:

Phinding Philly Wi-Fi

Program Director Keith Shaw hits the road to check out Philadelphia's new, citywide Wi-Fi coverage. Can he really connect anywhere in the City of Brotherly Love?
www.nwdocfinder.com/9823

PANORAMA PODCAST

Stop phishing faster

Laura Mather explains the steps companies can take to shut down sites quickly and when and how to get law enforcement involved.
www.nwdocfinder.com/9850

TWISTED PAIR:

Elton John gets old

Multimedia Editor Jason Meserve and Shaw discuss new flaws in Mozilla, the $50-billion government contract for IBM and AT&T, and figure out why Elton John might not want to shut down the Internet.
www.nwdocfinder.com/9851

BEST OF NW'S
NEWSLETTERS

Optimize the WAN and your career

Plus: NAC challenges

Wide area networking: As recently as a few years ago, it was difficult to find a company that was concerned with application delivery, but now that's a top priority for the vast majority of businesses. Because of this, the Wide Area Networking newsletter has covered this issue extensively. One perspective we haven't examined is the impact of application delivery on our careers. There is no doubt that a company couldn't function without the WAN, but it also couldn't function without electricity. That doesn't mean that the company's senior business managers believe that electricity provides direct business benefit. They know they need it, and they just expect it to be there. In many cases, the same thing applies to the WAN. The difference is that many senior business managers would rather have a conversation about electricity than about MPLS or other WAN technologies.
www.nwdocfinder.com/9834

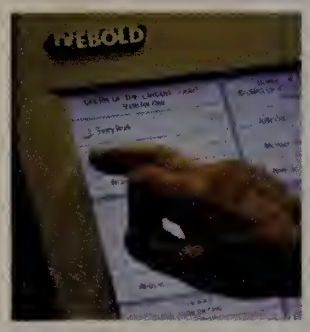
Network-access control: The biggest concern for businesses thinking about deploying NAC is the cost and complexity of the project, according to a survey by Current Analysis. Respondents' worries about deployment complexity center on whether the NAC gear would be compatible with other hardware and software already deployed, and what it would take to remedy any problems, according to "The Current Analysis 2007 NAC Enterprise Demand Survey." Beyond these concerns, potential NAC users also worry in a general way that NAC gear isn't fully baked yet. As a result, they may want to delay deployment until it matures, the survey concludes. **www.nwdocfinder.com/9835**

Small-business technology: Feeling paranoid? Think people are out to get you? No? You're just not paying attention. Small businesses have gained the attention of large companies who lust after their buying power. And unfortunately, hackers now lust after small businesses for their intellectual property and customer data, and find smaller companies make easier targets because their defenses are weaker. So says Dan Hubbard, vice president for security research at Websense, the security firm that just announced the Websense Express product line for SMB. The trend for large companies to make sophisticated security tools affordable for small companies is one we all should encourage.
www.nwdocfinder.com/9836

CA alleges Rocket 'stole' code

CA has accused Rocket Software of stealing source code and other intellectual property to build database-administration tools that closely resemble CA's. The company is asking a federal judge for more than $200 million in damages. Rocket declined comment when contacted by *Network World*. Four engineers at a CA subsidiary stole source code before taking new jobs at Rocket, where they used it to build six database-administration products for IBM's DB2 database in half the time it took CA to build almost identical products, a complaint filed last week in a New York court says. Rocket launched three database tools in December 2000, less than a year after hiring the four engineers who had worked at CA's subsidiary Platinum Technology International. CA alleges that these products had features and functions that "directly corresponded" to highly complex CA products that had taken nearly three years to create.
nwwdocfinder.com/9861

Report slams Diebold voting machines. Diebold Election Systems' voting machines are not secure enough to guarantee a trustworthy election, and an attacker with access to a single machine could disrupt or change the outcome of an election using viruses,



according to a review of Diebold's source code. "The software contains serious design flaws that have led directly to specific vulnerabilities that attackers could exploit to affect election outcomes," according to the University of California at Berkeley report, commissioned by the California secretary of state as part of a two-month review of electronic voting systems certified for use in California. The source-code review identified four main weaknesses in Diebold's software, including: vulnerabilities that allow an attacker to install malware on the machines; a failure to guarantee the secrecy of ballots; a lack of controls to prevent election workers from tampering with ballots and results; and susceptibility to viruses that could allow attackers to an influence an election.
www.nwdocfinder.com/9862

Microsoft cuts Vista price to $66 in China Microsoft has dramatically cut the price of Windows Vista in China in a bid to boost sales of its new operating system. Microsoft cut the retail price of Windows Vista Home Basic in China to 499 renminbi ($65.80), from 1,521 renminbi — a 67% reduction. The Home Premium version of Vista also got a significant price reduction, down 50% from 1,802 renminbi to 899 renminbi. The new prices, which were introduced last week, represent a steep discount compared with what users in the United States and elsewhere are charged for the software. Microsoft's Web site lists the recommended U.S. retail price of Vista Home Basic at $199, with Home Premium priced at $239. It's been speculated by some that the Vista price cuts in China also are intended to put a dent in rampant software piracy there, though that seems unlikely with reports of pirated copies selling for as little as $1.
www.nwdocfinder.com/9865

Compliance survey finds policies outdated. Compliance policies at large financial institutions are outdated and often ignored by employees, a new survey has found. The survey of 550 financial services professionals in London and New York found that 14% are not confident their organization's policies are up-to-date with the most recent changes to regulations issued by governments, stock markets and other institutions. One out of five survey respondents admit they have never even read their firm's policy manuals. Another 15% have read the manual at least once but do not continue to read it regularly. Complinet, a compliance vendor, conducted the survey.
www.nwdocfinder.com/9866

IBM acquisition targets data governance IBM last week announced that it has acquired Princeton Softech, a maker of data-archiving, classification and discovery products, to bolster its own data-management offerings. Financial terms weren't disclosed. Princeton Softech's products help customers improve database performance by separating historical data from current data and storing it securely and cost effectively, IBM says. The vendor's test data-management technology helps customers maintain data privacy by creating test databases that mask and protect sensitive data. An IBM spokeswoman says the company expects the acquisition to contribute to growing revenue in IBM's database business. The purchase is the 22nd acquisition related to IBM's Information On Demand strategy.
www.nwdocfinder.com/9864

Spotlight LINUX, OPEN DOCS

LinuxWorld ready to go. As more than 11,000 attendees prepare to converge on San Francisco for the LinuxWorld Conference & Expo this week, one industry analyst says customers are evaluating open source software the same way they evaluate proprietary software: It has to be priced right and work well. Enterprises are judging open source on its upfront cost, total cost of ownership, reliability and features, just as they would a commercial product, said Matt Lawton, an analyst with IDC. Attendance at LinuxWorld, scheduled for Monday through Thursday, is expected to be higher than last year's 10,000 because it is running concurrently with the first-ever Next-Generation Data Center conference.
www.nwdocfinder.com/9859

Fallout from state's open docs decision. Massachusetts has been a lightning rod and a leader in the movement for governments to embrace open document formats, and neither of those roles change, with last week's announcement that it will adopt Open XML. Reverberations from the state's final decision to embrace the standard stretch far and wide from people with disabilities, open source advocates, vendors and other state governments. The reaction is not all negative, especially given that Massachusetts' earlier acceptance of the Open Document Format has put the open document issue on the world map. However, Massachusetts did start out with the idea of banning Microsoft Office and its proprietary lock-in, yet ended up embracing a format originally developed by Microsoft and supported in its Office 2007 program — and that's what has drawn so much attention.
www.nwdocfinder.com/9863

Mozilla rushes out another Firefox patch. Mozilla last week patched a pair of flaws in its Firefox browser, two weeks after security researchers began posting code that showed how the flaws could be exploited in attacks. The 2.0.0.6 version of Firefox, fixes a pair of related flaws in the URL protocol handler component of Firefox.
www.nwdocfinder.com/9860

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Regulatory-compliance demands put IT on spot

BY ELLEN MESSMER

Meeting the goal of regulatory compliance means running a tight security ship. When auditors come calling, however, how do you prove that you do? Security managers share their tips about how high tech and plain old communication skills can make the difference between passing and failing.This is the fourth in a series of stories on key security issues that will be addressed at the Security Standard event scheduled for Sept. 10-11 in Chicago.

Bernie Donnelly

Regulatory compliance means getting your organization's network security, data storage and content-protection practices to conform to relevant laws so that auditors are satisfied and liability is reduced. With so many state and federal regulations, not to mention international ones, such as the European Union's data privacy rules, how does a security manager prepare for the day when the auditors knock on the door demanding evidence that all's in order?

Ask Darcy Soleil, a certified IS auditor (CISA) at Parker Soleil Consulting, in Ft. Lauderdale, Fla., who says she's usually called in to assist management in assessing the IT controls demanded by regulators under the Sarbanes-Oxley Act (SOX).

Her job is to help companies get ready for the external auditors from such firms as Deloitte Touche and Ernst & Young who will perform the official SOX audits needed to satisfy the Public Company Accounting Oversight Board set up by the U.S. Securities and Exchange Commission (SEC) under SOX.

Congress passed SOX five years ago to tighten financial reporting in the wake of such accounting scandals as the fraud uncovered at Enron that left investors and employees ruined.

Section 404 is considered the IT-specific section of SOX, which governs publicly traded companies of a certain size and will expand this December to include smaller firms, those with revenue of less than $75 million per year. Section 404 asks for evidence of "an internal control framework" related to a company's process for financial reporting.

"This could apply to the general ledger system, for instance," Soleil says, noting that the framework regulators want refers to any well-accepted one, such as COSO or COBIT. (COSO stands for "The Committee of Sponsoring Organizations of the Treadway Commission," and COBIT stands for "Control Objectives for Information and related Technology," so it's easy to understand why these process frameworks are seldom mentioned other than by their acronyms.)

As a CISA, Soleil's visit to a company will start with an examination of its IT processes ranging from change-control systems and in-house coding to how the organization handles identity management and security assessments. She may want to see IT or other department reports dating back three years. "I'll look at their backup systems or logical access," she says. "I'll look for anything that eliminates lack of accountability, such as shared accounts. One of the biggest issues is segregation of duties."

A process, not a project

Soleil points out that companies benefit when the security manager, the IT department and the business management tackle SOX compliance as "a process, not just a project." She points out that automated controls — rather than simple, manual ones — can be a plus for a company.

"If I'm looking at a Unix system or an Oracle database, for example, if I know it has an automated process for provisioning, I'll have to do less testing, and it's less expensive," says Soleil, whose customary fee is $100 an hour. She favors automated vulnerability-scanning and "continuous monitoring" because it lowers risk.

The Philadelphia Stock Exchange, broadly regulated by the SEC, uses Grant Thornton LLC as its external auditor and Accume Partners as its internal one, says Bernie Donnelly, the

See Compliance, page 44

InBrief

Nortel on a shopping trip; 3Com reportedly atop list

Nortel has begun discussions with potential takeover targets, according to a Reuters report citing an interview with CEO Mike Zafirovski. Nortel is looking to acquire companies to expand its reach in key markets, such as the enterprise, VoIP and IPTV. One such target is believed to be 3Com, and others mentioned include Foundry Networks, Tellabs and Sonus Networks. "We are doing lots of analysis internally on how to grow the company organically, and we started discussions recently with companies that we believe can be adding to our growth trajectory," Zafirovski said. "We're confident that we'll be able to successfully integrate other activities if the pricing is appropriate."

Dell to shell out $340 million for IT services company ASAP

Dell last week acquired ASAP — a company that manages software licenses, purchases, renewals and compliance — to bolster its software business. The $340 million deal marks Dell's third acquisition of a services organization in the past year and the second since CEO and Chairman Michael Dell dismissed then-CEO Kevin Rollins and reorganized the company. Dell, which is moving from direct sales to distributed-channel sales, picked up managed-services vendor SilverBack Technologies last month and ACS, a British IT managed services company, last November. The ASAP acquisition will further Dell's goal to simplify IT for customers by removing cost and complexity and improving IT implementation.

Adobe axes link to Kinko's after companies complain

Adobe Systems will remove a menu option in its Acrobat and Reader programs that lets users send documents over the Internet to FedEx Kinko's for printing, the company said last week. The move comes after complaints from other printing companies, who view the feature as steering business to FedEx Kinko's, one of the larger printing services companies worldwide. The menu option is included in Reader 8.1 and Acrobat 8.1, appearing in the "file" menu. The programs were released in June when the deal was announced.

Black Hat probes hacker exploits

VoIP security holes, virtualization rootkits and botnets are hot topics

BY ELLEN MESSMER

LAS VEGAS — If Las Vegas is a place to expose all, then that notion worked for the security experts who spent two days here at the Black Hat Conference laying bare the security weaknesses of everything from VoIP to rootkits and cell phones.

For the roughly 3,700 attendees who packed the conference held at Caesar's Palace, it was a walk on the wild side as some security practitioners shed their reserve and gloried in the naked truth that the computer systems in use today are pretty much just putty in the hands of a good hacker. At one session, speaker Nick Barbour, senior consultant at security-services firm Mandiant, went so far as to educate his audience about how to write better malware.

Being able to find more clever malware that can evade forensics will "make my job more interesting," said Barbour, who gave a presentation titled "Stealth Secrets of the Malware Ninjashe." Barbour went on to describe in detail techniques for Live System Anti-Forensics, Windows hook-injection mechanisms, Library Injections and more that he assured his listeners could take evasive malware to a new level. "This talk is mostly about evil," he said.

Much in keeping with the theme of Black Hat, where honesty is not the best policy but the only policy, iSec Partners security experts Himanshu Dwivedi and Zane Lackey took the stage to deliver the bad news: VoIP systems based on H.323 and the Inter Asterisk eXchange (IAX) protocols can be fairly easily compromised and brought down.

"There are a lot of known problems with SIP," said Dwivedi, principal partner at iSec, referring to the VoIP Session Initiation Protocol. "But we are here to say H.323 and IAX are just as bad."

In case anyone doubts their revelations about how weak authentication and authorization design in H.323 and IAX can let attackers compromise VoIP systems and launch denial-of-service (DoS) attacks, they have made available exploit tools on the iSec Partners Web site to prove their claims.

Returning to Black Hat to take up the theme of virtualization rootkits, Joanna Rutkowska, the noted expert who brought the topic to worldwide attention last year with her virtualization rootkit malware called "Blue Pill," acknowledged that researchers are getting closer to detecting her creation. At the end of her technical presentation, she announced she was posting Blue Pill — and its nested hypervisor variant New Blue Pill — for general download.

That evoked some concern at Symantec, which had been begging her to share a Blue Pill sample before the conference. Symantec, Matasano Security and Root Labs are teaming on a project to detect virtualization malware, and the only virtualized malware they had tested was on something they already had in hand, Vitriol, created by researcher Dino Dai Zovi.

"We think it's actually quite dangerous to release code like that to the public," said Oliver Friedrichs, director of Symantec's Security Response division, about the release of Blue Pill. While the stealthy Blue Pill is intended for research purposes only, Symantec expects it could quickly become a new attack vector. He said there were no plans to release Vitriol, a similar type of virtualization rootkit.

Hacker techniques for DoS and botnet attacks are making their way into social conflicts, such as the cyberattacks that occurred earlier this year against Estonia, a small nation of 1.3 million people with a well-developed Internet-based e-commerce and Web infrastructure.

Estonia saw its banking and government Web sites electronically fired on in late April and May. The electronic DoS attacks, coupled with what one investigator says was a custom-built botnet designed to disrupt Estonian home and business networks, came as tensions between

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Russian nationalists and Estonians spilled over into street riots in the nation's capital.

"I tried to understand both sides," said Gadi Evron, the well-known botnet hunter who works for Beyond Security and also the Israeli Computer Emergency Response Team (CERT). He says he was invited by the Estonian CERT to help with defense and analyzing the aftermath of the event, which some are calling the "first Internet war."

Evron said during his Black Hat presentation that he wouldn't use that term but said it was a cyberconflict. He said the current analysis done with Estonian officials indicates the first wave of DoS attacks against specific Web sites may have been triggered by the "Russian blogosphere" where angry Russian speakers urged use of attack tools to ping Web sites. "They provided a tool for the entire population to use," Evron said.

The second phase of the attacks a few weeks later saw something more sinister. "One attack was launched by specifically crafted bots," Evron said. "The attack target was hard-coded into the source."

These hard-coded bots, designed to attack specific Estonia Web sites, were dropped onto home computers in Estonia, basically making Estonian home computers the source of attacks on their own country's infrastructure. In the aftermath, analysts are trying to figure out whether the attack was simply energetic hacktivists, or something even darker, such as a coordinated attack by the Moscow Kremlin, something the Russian government has fiercely denied.

"Who is behind the attacks?" Evron asked, answering with some wry humor, "The KGB. But that doesn't exist anymore."

While the old Soviet Union's KGB secret security service technically no longer exists, it's hard to forget its style. "OK, the KGB no longer exists," Evron said. "I can't tell if it was something random from the blogosphere or a planned attack." But he added: "I find it hard to believe it was a mere epidemic."

Several signs point to a well-organized plan with attack events commencing at virtually the same time. "The Russian-language blogosphere was updated periodically with new attack instructions," he noted. "It was adjusting and responding to the defensive actions of Estonia."

Evron noted that this style of Internet-based information battles are likely to be part of future conflicts, where adversaries turn the citizens' computers and networks against them.

Not all the news was bad at Black Hat.

For instance, at least we can take comfort in the fact that cell phone and smart phone viruses still constitute a minute proportion of the hundreds of thousands of overall computer viruses, with only 373 distinct phone-based specimens to worry about so far.

That's according to Mikko Hypponen, chief research officer at F-Secure, whose Black Hat presentation vividly demonstrated how some of those viruses can attack phones via Bluetooth wireless and other means.

Most phone-based viruses are targeting Symbian platform phones today, Hypponen said, though he guessed that would shift more toward Windows Mobile and the iPhone. Cell-phone virus writers today largely just remain malicious pranksters who write malware to disrupt phone use, he pointed out.

So far there's little indication that these virus writers are turning into the kind of money-loving types who write malware for PCs today mainly to make a buck. Nor has the type of malware hitting PCs these days, such as rootkits or viruses that replicate over e-mail, yet been seen, "and we haven't seen anything that we couldn't clean and get out of a phone," Hypponen concluded. ■

ONLINE: Identity management

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EBay touts data center direction

Company's computing guru shares views on virtualization

BY BETH SCHULTZ

Today on eBay, you just might find that absolute perfect mantelpiece you've been looking for, at a great price. It's there, nestled among some 100 million other items, placed for sale by one of the online auction site's 233 million registered users. Now think about the back-end infrastructure that enables you to find, and then buy, that object of your delight, and you do have to wonder how it ever happens. Contemplating the database environment alone — 600 production database instances spread across hundreds of medium-size servers — is enough to give even the most stalwart IT executive a case of the shakes.

Paul Strong

But Paul Strong, distinguished research scientist at eBay, doesn't faze easily.

"You just can't get all the details for 100 million items on a single machine," he said in a recent interview, during which he described eBay's IT infrastructure, discussed next-generation trends and shared how large or small enterprises could benefit from the lessons the online auction site has learned along the way. Here are some of his thoughts, which he'll also share during an opening keynote address at IDG World Expo's joint Next Generation Data Center (www.nwdocfinder.com/9832) and LinuxWorld (www.nwdocfinder.com/9833) conferences in San Francisco this week.

The next-generation data center today

When we look at the data center, we don't see silos and silos of applications on islands and silos of infrastructure, because those have proven to be expensive and not particularly efficient, and they tend to be very static. We need to move toward [something] more dynamic, and that means really viewing applications and business services as being network-distributed. And the platform on which they run is the data center. The data center is a system and should be treated as such. The application components are distributed across the entire system. How your application behaves depends on where your load-balancers direct traffic, the number of application instances behind them, how you connect to your databases. Your applications and services don't run on a single server. They run on a collection of resources that range from servers to firewalls, load-balancers and such.

Where the next-gen data center is headed

One of the real trends in the next-gen data center is that it's all about interconnectedness. It's about the fact that all value is delivered by connecting sets of things together and agility is achieved by reconnecting the same sets. So it's all about relationships and how you manage them. It's the relationships that deliver value and how you cable together your infrastructure, how you make your applications and services communicate, and the patterns you use to drive the value it delivers for the business.

Managing the next-gen infrastructure

We're using some technologies, for example semantic Web technologies, to allow us to have an ontology that describes our infrastructure and allows us to ask questions of it. We want to be in a position where we can ask our management framework, "If a user presses this button, show me the things in the path." And if they have a problem with it, "Show me everything in the path that could be broken." Or if, say, a load-balancer in our infrastructure breaks, "Show me which business process is impacted, so I can understand the financial impact on our business." Things like that.

We have a good start, but we expect that we won't be able to capture all of these relationships. So we're trying to build a system that if we don't know everything, at least it captures what we do know, so we can learn or infer the things that we don't know. For example, if we know there's a relationship between two application components, and they exchange a message, then we can infer — even if it's not explicitly stated — that it's a SOAP message over HTTP, [and] they must be able to exchange HTTP messages between them. That means there must be the ability to create TCP/IP connections between them, which means there must be a physical link that connects them, because you know the application which is exchanging SOAP messages depends on the operating system to have a TCP connection between them that depends on physical servers that have bits of wire connecting them together. So by knowing the high-level thing, you know that somewhere there's a relationship, and you can go away and search for it and understand and see if you can see how it's doing, what its properties are. Because if the SOAP message is running slowly, you can say, "OK, well what are the physical cables this is running over? Is there a problem with a port in the line?" And things like that. It's all about the relationships.

Server virtualization's role at eBay

If you think of server virtualization, like VMware and Xen and a whole slew of others, we don't use a lot of that in production. The main reason is that one of our main constraints on deploying things is really around performance and on latency, very specifically. Many of the virtualization products, at least up until recently, have carried a latency penalty, because obviously if you're going to do something that goes through the I/O stack, then it's going to have to go through not only the I/O stack of the operating system but the virtual machine that sits under it. However, we have used those in environments like test and [quality assurance] where we want to rapidly provision stacks of software for testing purposes.

Database virtualization at eBay

By using database virtualization, we're able to scale. We used to run on the largest computers money could buy with the most memory you could fit in them. And it didn't matter how big of a machine we got; we couldn't fit our databases onto them. So initially we started partitioning those databases in a traditional sense by having discrete instances. And then we discovered that you can't get all the details for 100 million items on a single machine either. So you had to start splitting them. We moved a very large chunk of database functionality out of the traditional database tier and into the middle tier. We heavily customized it so we were able to basically scale the database across hundreds of . . . medium-size servers by essentially virtualizing the database. So for an application on our infrastructure that uses the database, the coder doesn't need to know anything about the database vendor, what the table spaces look like, where they data is physically located or anything else. We built an abstraction layer into our application-layer stack that allows us to virtualize the underlying database. So again, we get the same benefits in general of virtualization, which is essentially efficiency improvement, scalability improvements and flexibility, because we can change things behind the scenes without impacting the application that depends on it. And for us, and I believe many users, because data is exploding in terms of its quantity, that how you manage data and how you make it accessible by very large distributed applications is becoming a very big problem. And it's probably one of the hardest places to actually scale.

The ultimate next-gen goal

We really should be recognizing that we never build to an endpoint. We're building for constant change and agility and responsiveness to the business. Anything static possibly ends up being a constraint on the business in terms of agility and capabilities of delivering shareholder value. ■

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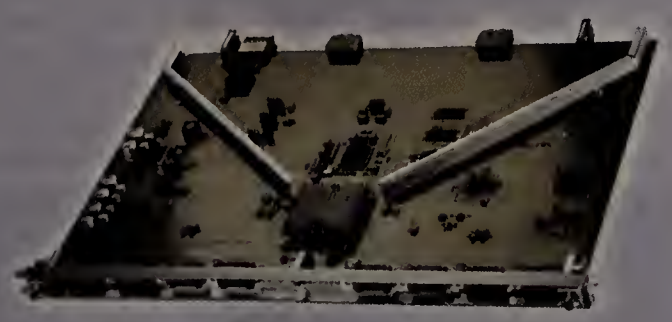

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Big Blue readying data center revamp

IBM says it will save $250 million by moving 4,000 servers to 30 mainframes

BY JOHN FONTANA

IBM last week said it will consolidate nearly 4,000 PC servers onto mainframes running Linux, in a move that will cut $250 million from the cost of operating its six major data centers.

IBM says the move will save enough energy to power a small town and will reduce by 85% the square footage needed to house racks of computers.

The company has 8 million square feet of data-center space, which is equivalent to 139 football fields. The U.S. sites targeted for server consolidation reside on approximately 184,000 square feet, IBM says.

The company is trying to add yet another chapter to the life of the ages-old mainframe, which has been left for dead on the side of the information superhighway more than once. In addition, it is trying to make a statement about the future of distributed computing and IT infrastructure design by tapping into the mainframe's scale, security and virtualization capabilities.

"There are all the altruistic aspects, but IBM is doing this to prove a point they have been trying to make for years," says Dan Olds, principal of the Gabriel Consulting Group. "And that is [that] you can run Linux apps, small apps, the nontraditional mainframe apps on the mainframe by the bushel load, and that the usage model will pay off in terms of performance, security and economies related to people costs and facility costs."

Olds says, however, that to be successful, IBM will have to win over people who don't use mainframes.

"They have to get where a nonmainframe-heritage guy, a Unix or x86 guy, is willing to take a look and take it seriously. That is what this is about." He says IBM is being smart with this strategy in that it is converting its own data centers first. That will provide knowledge for IBM and credibility when it tries to sell customers on the idea.

Virtual testing

The avatar of IBM researcher Donna Dillenberger stands in a virtual data center in Second Life that IBM built and is connecting to real data centers so companies can study power management issues. IBM hopes to double its own computing capacity in the next three years without increasing its power consumption.

IBM

"IBM is going to be drinking its own champagne," says Dave Anderson, System-z green evangelist for IBM, who says the consolidation focuses on systems that run IBM's business and support 350,000 users. "I think you will see the mainframe make a huge resurgence as people try and run their data centers most efficiently."

IDC last week reported that the IBM mainframe posted its fifth consecutive quarter of revenue growth and outgrew Windows-based servers in 2006 in terms of revenue.

And IBM said earlier this month at its System z Summit that mainframe hardware sales in the fourth quarter of 2006 were the largest it has seen since the fourth quarter of 1998. The company told "Big Iron Newsletter" that it has roughly 10,000 mainframe installations in the world, and reported that in the first quarter of 2007 it had surpassed 11 million aggregated MIPS.

"Nobody has just a mainframe, but it will come back where it makes sense, where you need economy, and where you have enough workload," Anderson says.

IBM's data-center makeover is part of Project Big Green, a commitment IBM made in May to reduce data-center energy consumption for IBM and its clients.

The company will deploy 30 System z9 mainframes running Linux within six data centers to replace 3,900 servers, which will be recycled by IBM Global Asset Recovery Services.

The data centers are located in Poughkeepsie, N.Y.; Southbury, Conn.; Boulder, Colo.; Portsmouth, U.K.; Osaka, Japan; and Sydney, Australia.

The company is focusing on moving workloads generated by WebSphere, SAP and DB2, but will also shift some of its Lotus Notes infrastructure.

The mainframe's z/VM virtualization technology will play a big role in dividing up resources, including processing cycles, networking, storage and memory. With z/VM 5.3, IBM can host hundreds of instances of Linux on a single processor. The z9's HiperSockets technology, a sort of virtual Ethernet, will support communication among virtual servers on a single mainframe. IBM also will take advantage of logical partitioning, which is rated at Common Criteria's Evaluation Assurance Level 5, that group's highest security ranking.

Cutting costs

IBM says energy costs represent the bulk of $250 million in expected savings over five years.

"We are saving over 80% in energy cost by moving from distributed servers to z9 technology," Anderson says. "Not only is there cost in powering IT equipment, such as servers and storage; but also infrastructure costs for computer-room air conditioning and UPS systems. If you can keep a lean IT infrastructure, it helps you have a lean facilities infrastructure."

IBM says it also hopes to reduce licensing costs, especially on software that is licensed per processor, and to free up staff to work on projects that will generate revenue.

IBM plans to move its own workloads first, but will offer hosting services to customers from the mainframe-based data centers.

What does IBM have to say to such companies as Google, Yahoo and Microsoft, which are building giant data centers — some near hydroelectric power sources — and filling them with racks and racks of servers?

"The model today with distributed servers is unsustainable," Anderson says. "You really want to do more work with less servers, and pick energy-efficient servers with good reliability and the ability to scale." ■

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12 software-as-a-service issues

Before choosing, think about SOA, data security, support and hype

BY JON BRODKIN

Software-as-a-service is just about the most-discussed topic in software these days. It'll probably save you money and lead to faster implementation, but it's not always a no-brainer. Here are 12 things to think about before choosing a software-as-a-service application.

1. Mission critical.

Don't use software-as-a-service for any application your company cannot do business without — unless you're sure the vendor can support it better than you. "You shouldn't get [software-as-a-service] for any application where your entire company is depending on that application running successfully all the time, and you feel that you could not get the reliability or the performance that you require except by controlling it yourself," consultant Amy Wohl says.

A stock brokerage, for example, should keep trading software in-house. But a large company might have 100 applications that it absolutely cannot run the business without, she says.

Many customers are apparently confident in the ability of software-as-a-service vendors to support mission-critical applications. Saugatuck Technology says 49% of enterprises plan to deploy mission-critical software-as-a-service applications over time.

2. Pay as you go? You wish.

We all know software vendors are addicted to up-front licensing payments. A major selling point of software-as-a-service is that monthly payments force vendors to continually improve service and satisfy customers. But most software-as-a-service vendors are actually turning this model on its head and forcing customers to pay fees for as much as a year in advance, says Jeffrey Kaplan, who runs consulting firm ThinkStrategies.

"Traditional software customers are tired of parting with their money before they receive the benefit of the application," writes technology blogger Ken Boasso. "When [software-as-a-service] vendors act like traditional [independent software vendors] by requiring up-front annual payment, even offering deep 'time-value' discounts, customers want to know how [software-as-a-service] is different from the same-old, same-old and if there's something wrong with it."

3. Don't assume your data will be safe.

Make sure the vendor has a reliable way to back up data in case there is a disaster or the vendor goes out of business. If sensitive data is involved, you want the vendor to have contingency plans for backup and recovery and service agreements that include harsh penalties for losing or exposing data.

Customers should find a way to escrow the application itself so there is a copy, Wohl says.

Customers "really need to understand the [software-as-a-service] infrastructure underlying the delivery of the [software-as-a-service] solution," says William McNee, president and CEO of Saugatuck Technology.

4. But software-as-a-service could improve security.

Software-as-a-service lets companies cooperate with business partners without exposing their internal networks. "A lot of companies don't want those people wandering around inside their firewall," Wohl says. Another beneficial side effect is that software-as-a-service can give companies the off-site backup of data required by various government regulations, Kaplan says.

"We need to have off-site backup of our data to be compliant — lo and behold, software-as-a-service with its off-site hosting solves that problem," Kaplan says.

5. Your software-as-a-service will run better on a service-oriented architecture (SOA).

A SOA and its emphasis on Web interfaces and interoperability will give you an IT infrastructure that takes advantage of the strengths unique to software-as-a-service.

"[Software-as-a-service] is able to leverage a lot of next-generation technologies to its advantage. This includes a service-oriented architecture that is providing a tremendous benefit as it relates to integrating back into enterprise applications," McNee says. "Companies going down the direction of SOA will find that their integration with [software-as-a-service] -based applications will be much easier."

6. Single sign-on.

Look for vendors who offer single sign-on capabilities that authorize users to work on multiple computing resources. "This is particularly important with more complex [software-as-a-service] systems that also include third-party add-ins, such as background checking [software-as-a-service] applications and reporting [software-as-a-service] applications," writes consultant David Linthicum.

7. Software-as-a-service integration is limited.

Software-as-a-service vendors have struggled to find a good way to integrate their applications with those made by other vendors, Linthicum says.

"As more enterprises move their applications to [software-as-a-service], there is a growing need for SaaS-to-SaaS integration," he writes. "Unfortunately, as customers are requesting this, many of the [software-as-a-service] providers are stumped for an answer; beyond [hiring] a bunch of developers and hoping for the best."

Too often, this approach creates expensive and "cumbersome architectures that lack agility," Linthicum argues.

8. Don't expect too much.

A software-as-a-service application that works well for a small group of users may not be ready for rollout to your entire enterprise. "You need to find out 'what can I reasonably expect from using this application? Is it something I have to limit to a small set of people?'" Wohl says.

If more than one department uses a software-as-a-service application, set boundaries. "Explicit mechanisms . . . will be needed to determine who decides the level of customization of software and who pays for it when two departments want to use the software but only one requires modifications," states a McKinsey Quarterly report.

9. Beware of the overhyped market.

Software-as-a-service is popular, so nearly every vendor wants a piece of the market. Unfortunately, many simply take existing software and place it on the Web without giving any consideration to ease of use.

"Some existing software vendors are bastardizing the term," Kaplan says. "All they're really doing is hosting the same old applications with all of their limitations.... [software-as-a-service] applications are built to reside on the Web, and therefore they ought to be easy to access. They ought to have an intuitive interface that's easy to use. Most importantly, they should have the ability to have multiple users collaborate in real time with that application."

10. Is that "throat to choke" virtual or human?

Find out before signing up whether an

See SaaS, page 22

THE FUTURE OF SAAS

75% of U.S. businesses will deploy at least one SaaS application by 2010. Mid-size and large companies will use an average of seven SaaS applications each by 2010, more than double today's rate.
30% of new business software deployments will be SaaS by 2012.

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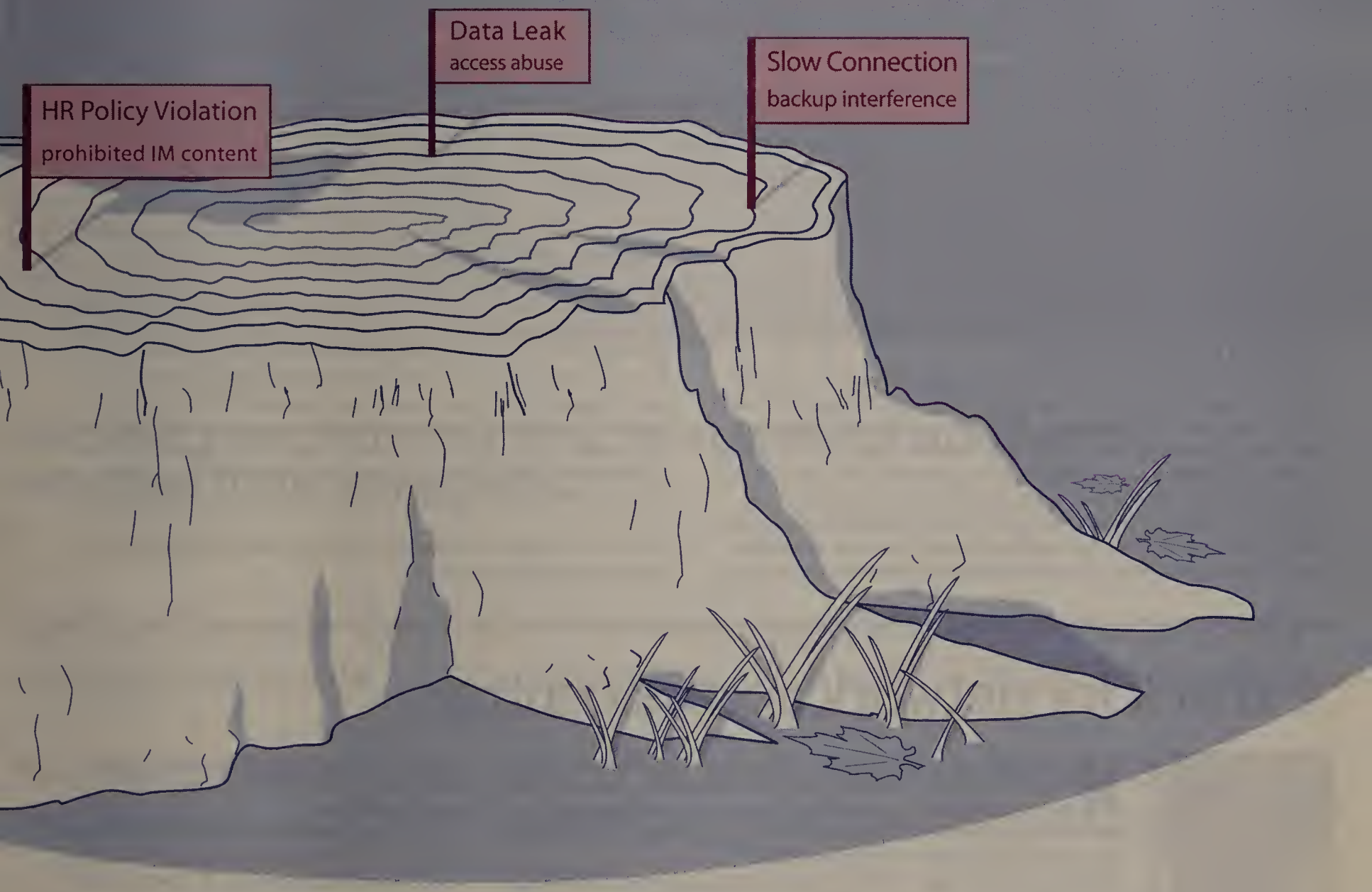

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A semi-visible semi-abomination

NET INSIDER
Scott Bradner

I seldom hear from vendors that are targets of negative comments in this column. Every now and then I get a flame, and once in a blue moon someone actually wants to talk seriously about the issues I raised. NebuAd, the advertising start-up I criticized recently, turns out to be one of those blue-moon companies.

A few days after the column "An invisible abomination" (www.nwdocfinder.com/9821) appeared in early July, I got e-mail from one Ben Billingsley, who identified himself as involved in marketing for NebuAd. Billingsley said he had read the column "with interest" and wanted to know if I would be open to talking with NebuAd's CEO. No flameage, just a polite offer, so I accepted. Billingsley set up a conference call in which I was able to have an informative conversation with him, Chairman and CEO Robert Dykes and President of Advertising Systems Kira Makagon.

I wrote the original column using information on NebuAd's Web site and from a number of online comments and blogs. Dykes did not say I had gotten things wrong — he just offered to describe what the company did. Based on his description, I'm not sure I did get the basics wrong. But what NebuAd is doing is not as bad as I feared, though it's not as good as I would like, either.

> "What NebuAd is doing is not as bad as I feared — though it's not as good as I would like, either."

Basically, the company monitors all sites you visit and builds up a profile of your interests. Based on what Dykes says, the profile is quite coarse and basically keeps track of the categories of the sites you visit. The company categorizes the sites based on their review and on scanning site metadata and text. NebuAd carefully does not include any categories related to health issues, politics or adult topics, he says. Thus it winds up with a profile tied to an IP address (which they hash before storing) with counters indicating how often particular types of sites are visited. If your previous Web activities included visiting a lot of car-related sites, this lets NebuAd serve up an ad for a car — even if you are visiting a Web site focused on quilting.

The company also keeps track of session-based activities — for example, how many people visited Ford, what they saw and what else they visited. NebuAd provides this information to ad agencies but only after double-hashing the IP address to make it essentially impossible for the agency to link the activity back to an individual IP address.

Dykes also says that NebuAd tries hard to be sure that the Web site or the customer knows what's going on. Mostly it sells its services to Web site operators — the quilting site can get more ad revenue if it is not restricted to quilting-related ads. NebuAd also offers its services to ISPs. He says most major ISPs do not want NebuAd to add still more ads to the user experience but ad-supported ISPs (for example public Wi-Fi networks) do want the revenue from additional ads. NebuAd insists ISPs' users are told upfront about the usage monitoring, with enough lead time that they can switch providers if they want to, according to Dykes. He also says that any ad that NebuAd inserts without the Web site's OK has a banner on it indicating that the ad is not from the site. Billingsley sent me an example; I'd just as soon that the banner was bigger and clearer, but at least there was one.

As I said, I'm now not as unhappy as I was. I still do not like the idea that NebuAd is keeping track of what I'm doing, and worry about what additional info the company might decide to start using its systems to record if it runs into financial difficulty or is bought by a less scrupulous company. NebuAd and its privacy board, however, do seem to be trying to do this bad thing in as responsible a way as I can think of.

Disclaimer: It's not likely that Harvard will run into significant financial difficulty anytime soon, so the above worries would not apply and the university has not expressed any specific opinion on this topic.

Bradner is Harvard University's technology security officer. He can be reached at sob@sobco.com

A knack for network access control

RISK & REWARD
Andreas Antonopoulos

Network access control is a huge topic of discussion in IT and a focus of vendor activity. Over time, the acronym has become almost generic through overuse, and the definition varies. When I asked IT executives how they define it, the consensus is that NAC's core involves three things:

- Admission control, which selectively lets hosts attach to the network and stay attached — a key to NAC, according to all who answered this question.
- Health checks, which see that connecting systems are up-to-date on patching, antivirus software and the like. These are part of a majority of respondents' definition of NAC.
- Access control, which determines which hosts can see or do what when they are attached. A minority of those surveyed cite access control as ideal in a NAC system. A CISO at a financial services company explains this feature as "the ability to validate end systems prior to gaining access and then controlling where they are allowed to go once they are on, much like user management should be."

Few respondents practice NAC. Connecting to the VPN is the extent of NAC for most external hosts, for example, and there is no access control on LAN ports. About 14% of respondents check endpoints for application and operating-system patches; the presence of firewalls and antivirus or antispyware software; USB-attached devices; and password strength. Nearly 60%, however, wish they could check at least for firewalls and antivirus and antispyware tools, and about 40% desire password and operating-system checks. Less than a third want application checks.

Cost and complexity explain most of the gap between the level of checking desired and the level implemented; NAC can require added network infrastructure and sometimes upgrades to existing network equipment, for example, to support the 802.1X standard for authenticating network access at the switchport level. Although few are spending anything on NAC yet, everyone feels future spending on NAC probably (most feel certainly) will go up.

Applying admission, health and access controls on endpoints sounds enticing, but until it can be done without network overhauls and with more broadly interoperable protocols, adoption probably will be slow and spotty.

Antonopoulos is senior vice president and founding partner at Nemertes Research, a technology research firm. He can be reached at andreas@nemertes.com.

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Triple play or triple threat?

REALITY CHECK
Thomas Nolle

Things are supposed to happen in threes, and the trio the network arena has been focusing on is the "triple play" of voice, data and video service. But a new triple has emerged, one that's potentially a greater influence on the industry — and for some at least it's not a good influence.

Mobile services have been the financial darling of the service-provider industry, growing in revenues and largely keeping the big providers ahead of the game as legacy wireline service revenues fall. Mobile has become the No. 4 item in the evolution from triple play, in fact, but it's also the focus of our new trio of threats.

> "A new triple has emerged, one that's potentially a greater influence on the industry."

Our first threat is **Apple's multimodal iPhone.** Is the iPhone cool? Sure, but that's not the big news. Neither is its design or its Web surfing. The big factor is that the iPhone works with Wi-Fi in addition to cellular service. In fact, because the iPhone supports only the slower form of wireless data, it works a lot better on Wi-Fi than on the wireless network.

IPhones are far from the first to be multimodal like this, but the popularity of the iPhone is going to increase the number of people who use mobile instruments on something other than the mobile network. That weakens the wireless operators' control over the customer by not only allowing the customer to have an "out-of-provider experience" but encouraging it. In a hot spot, a user could learn to stray from the carrier fold (for now, AT&T).

To what? Well, that's where the next threat comes in. **Fixed wireless is encroaching on 3G.** Municipal Wi-Fi networks are gaining ground. Sprint and Clearwire are partnering to create a national WiMAX network. Today's iPhone doesn't work with WiMAX, but nobody doubts that a future version will. T-Mobile is pushing its own multimodal service plan using its own hot spots or the customer's home Wi-Fi. The threat is so great that one of the hottest new technology concepts in wireless is femtocells, or microcells using 3G technology that are installed in the home (or, in theory, in other places) to create an owned-by-the-carrier form of home Wi-Fi access.

The reason this issue is so critical is that advanced mobile services, such as video or even Web surfing, aren't something that can be easily conducted while whizzing along the expressway at 65 mph or so. This is coffee-klatch activity, the sort of thing you do sitting in a nice outside table on a promenade. Those are the kinds of places where Wi-Fi, or even better WiMAX, could reach easily. In fact, Clearwire has said that most of its customers have wireline broadband already, so they're using the service for "portable" needs. Phone users could do simple voice on 3G and take all their non-voice services off-net, and off the bill.

Of course, all of this is hampered by the fact that in the United States at least, your carrier provides your mobile handset and the carrier may be less than enthusiastic about your intended exercise in broadband democracy, because it potentially loses your payments for these advanced data and video services. But maybe not for long, because the **FCC is exploring setting aside a portion of spectrum for open wireless services.** This allocation would be available only to bidders who promise no instrument or service constraints on the user. Google, not surprisingly, already has indicated it will throw some of its war chest at the auction for this spectrum if it becomes available as planned.

There has been increased pressure on regulators to open up the mobile space, a kind of backlash against the fact that competition for wireline broadband seems limited to fights between cable and the RBOCs. The plan to set aside some open spectrum won't be world-changing in itself, because only big players can bid the amounts likely to be needed to win auctions in major metropolitan areas, and because the cost of deploying 3G cells is far from trivial. But it will create pressure on the big mobile operators to open their own networks just a bit, and then maybe a bit more.... You get the picture. We are likely moving toward more open wireless.

All this is probably very good news for the consumer, because mobile services are really a lot more walled gardens than anything else that's offered. It's also likely very bad news for the operators, because it will erode away their absolute control of the revenue stream that flows out of mobile customers. That has significant network infrastructure impacts, too.

The most likely immediate impact is on the IP multimedia subsystem, or IMS. The darling of the trade-show circuit last year, IMS was far from a show-stopper in the debut of NXTcomm this year, and it could be that the handwriting was already on the wall. For all its talk about application enabling, IMS is a customer-ownership architecture. If the triple threat I've talked about weakens the ability to "own" the customer, it weakens IMS. The Verizon A-IMS and AT&T CARTS (Common Architecture for Real-Time Services) are examples of extensions to the basic IMS capabilities to incorporate more service types and more customer-relationship flexibility. A number of IMS supporters are already considering how IMS could be adapted to the new "unlocked customer" situation.

All of this activity may be coming from the wrong end of the industry, though. Incumbent operators aren't noted for their ability to adapt to new consumer trends, and all of the accommodations to these threats that I've seen so far from the legacy mobile operators and equipment vendors have focused on somehow getting customer ownership back. It's probably too late for that now, because none of these three threats seem likely to go away.

Nolle is president of CIMI Corp., a technology-assessment firm in Voorhees, N.J. He can be reached at tnolle@cimicorp.com.

SaaS
continued from page 18

application is "self-supported" via the Web or if the vendor makes live customer service reps available to users. "Some of the more simple, straightforward applications... where software is relatively intuitive, there may be minimal tech-support services available. Therefore, there could be a lag in response times," Kaplan says.

11. You still need in-house support.

Software-as-a-service expenses are often justified by vendor promises to deliver better services than customers receive with traditional software. But to get the full benefit of improved services, IT shops must match service-level guarantees and make internal commitments to business users and their own customers.

"For example, if a software-as-a-service vendor guarantees a service level on invoice-processing speed, the IT department must ensure the availability of the purchasing department's infrastructure system that supports this function," the McKinsey report states.

12. Size matters — sometimes.

Software-as-a-service is often billed as a good solution for small- and midsize businesses (SMB) who want to control costs and lack extensive IT staff. But many proponents that companies of any size can benefit.

"When you put software up on the Internet ... who will use it depends on what the software does, how good it is and what it costs. The size of the company doesn't actually enter into the equation," Wohl says.

But software-as-a-service-shopping SMBs face a different decision process than large enterprises, one that should favor application suites rather than individual tools.

"NetSuite is very much of the belief that the suite-oriented approach for an SMB customer makes a lot of sense," McNee says. "SMB customers don't have a lot of IT staff, they don't have a lot of time and expense to integrate all these applications." ■

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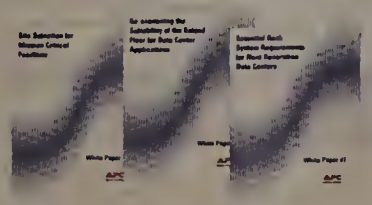

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'Net neutrality? Google, go first!

EYE ON CARRIERS
Johna Till Johnson

You've got to admit that when it comes to public relations, Google totally rocks. The company's goofy name has become the generic term for "search the Web" — a branding coup your average Madison Avenue marketing wizard would kill his grandmother for. And the company's motto ("Don't be evil") and ostentatious eco-friendliness successfully promote the image of a wacky company that just wants to be your best buddy.

> "To Google, 'neutrality' means 'telcos can't be trusted to charge fair-market rates.'"

But that's nothing compared to Google's amazingly Orwellian effectiveness at reworking terms like "openness" and "neutrality." On Planet Google, what "openness" really means is "other companies should share their resources, so Google can gain a competitive edge." And "neutrality" means "telcos can't be trusted to charge fair-market rates for the use of their infrastructure, and we need the feds to force them to."

And the kicker? None of this applies to Google itself. Google can be trusted to do the right thing because ... well, the company says so. They're the good guys (just ask 'em). And telcos are the bad guys. They just are.

Forget "don't be evil" — Google's real motto is: "Just trust us (and pay no attention to the man behind the curtain)."

Sorry, fellas, I'm not the trusting sort. And I always worry about the man behind the curtain. The reality behind the propaganda is this: The "open" company's considerable fortunes are based around the world's most proprietary search engine. And as for "neutral" — try Googling Google, and you may notice something surprising: very few negative comments on the company pop up. Odd, no?

Google has publicly acknowledged acts of censorship, such as wiping Vice President Dick Cheney's residence from satellite maps, and bowing to political pressure to eliminate content from sites in different countries. Neutrality? Not on Planet Google.

The bottom line is that Google's done a terrific job propagandizing itself — and demonizing its competitors. Imagine if Google were owned by a telco: The 'Net-neutrality folks would be marching on Washington, shrieking that no telco can be trusted to operate a search engine fairly. Google, on the other hand, should be free to do exactly what it wants — because they're the good guys.

Nice try, guys, but no cigar. Here's what I propose. Google wants 'Net neutrality? Great! Virtue begins at home. Let the company first propose federal regulation of all search engines to ensure "neutral" rankings of search results, and to guarantee that information isn't getting concealed (or revealed) for political purposes. Let's see Google regulate itself — then we'll consider regulating its competition.

I'm not holding my breath. But as I said, I'm not the trusting sort. One thing I've learned to count on over the years is a healthy distrust of the motives of large corporations. That includes telcos. And Microsoft. And Google, too.

Johnson is president and senior founding partner at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

IBM offers break on supercomputer

University of Alabama at Birmingham takes advantage of price reduction

BY JON BRODKIN

IBM boosted supercomputing a few notches in June with the Blue Gene/P, a system nearly three times as fast as its predecessor at a cost of $1.3 million per rack.

But in anticipation of the Blue Gene/P, IBM dropped the price of the Blue Gene/L, to about $800,000 late last year. That prompted sales of Blue Gene/L to more than double in the first half of this year, compared to the second half of 2006, says Herb Schultz, IBM's deep-computing marketing manager. At its highest price, the Blue Gene/L cost $1.3 million per rack, same as the P's current price.

"It's still a very viable platform," Schultz says. Among universities, "we've had some really big sales, RPI and Stony Brook, for instance."

Another buyer was the University of Alabama at Birmingham (UAB), which begun using a Blue Gene/L a month or two ago to design drugs that could treat clogged arteries, neurological diseases or certain types of cancer.

UAB is not a minor player in research, doing more than $225 million worth of work for the National Institutes of Health each year. But it was reluctant to splurge on a supercomputer until the recent price drop.

"We knew the L was a model near the end of its production, and we were able to secure a much better price on that than we would on the newer model," says Richard Marchase, vice president for research and economic development at UAB. "For our purposes, the L had plenty of capacity."

UAB tripled its computing power in computational biology and molecular simulations with the purchase. The supercomputer will shorten the yearslong process of developing drugs targeted at specific protein structures, Marchase explains.

In computational biology, UAB researchers will use the supercomputer to examine data about proteins and find protein structures that are thermodynamically stable, he says. Once those structures are identified, which could happen in six to eight months, researchers can begin figuring out what kinds of small molecules could interact with protein structures in ways that cure diseases, he says.

"The increase in speed that we were able to purchase with the Blue Gene is allowing us to go through these iterations," Marchase says. "These processes are very iterative," he says, requiring researchers to study individual structures and improve upon them incrementally over many steps.

The Blue Gene/P can perform 13.9 trillion operations per second, compared with 5.6 trillion for the Blue Gene/L purchased by UAB.

IBM doesn't want the Blue Gene/L's late-in-life sales increase to last forever. Schultz says IBM is aiming to transfer existing customers to the Blue Gene/P, which delivers more power per dollar and per watt.

The Blue Gene/P has four publicly announced customers, including the U.S. Department of Energy and the Max Planck Society for the Advancement of Science.

IBM expects to announce additional signings throughout the summer and to eventually find a customer to buy a petaflop system composed of 72 Blue Gene/P racks, according to Schultz. A petaflop machine could perform 1 quadrillion mathematical calculations per second. ■

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Zero-day exploits: Consider the OS

BY MARK ZIELINSKI

Attackers wielding zero-day exploits are one of the most significant threats facing enterprise networks today. While plenty of vendors promote zero-day protection mechanisms, if they don't address the entire operating system, they leave the door open for attack.

Today's operating systems are designed to provide varying layers of access to resources. Hierarchical protection domains — often referred to as privileged rings — protect the operating system from faults and general instability. Arranged from most privileged or most trusted (usually zero) to least privileged or least trusted (usually the highest number), these domains provide the ability to enforce security in the operating system.

Applications execute in the least trusted or least privileged domain (also known as user space), while the operating system executes in the most trusted or most privileged domain (also known as kernel space). This separation enables the operating system to distribute resources and shield against undesirable behaviors that might otherwise have a rippling effect. Without this barrier, viruses and other malicious software could easily replicate across each process and run rampant. Protected behind the barrier, the operating system requires each application to request permission to access various system resources or to have more privileged operations carried out on its behalf.

Microsoft and a host of security vendors have invested a tremendous amount of time and effort into developing enhanced security features to protect customers. These enhancements typically deal with kernel space, monitoring the resource requests made by applications in user space. The enhancements, for example, prevent write access to critical structures in memory, monitor inbound and outbound packets for known exploits, and analyze application behavior to ensure that a word-processing application isn't suddenly and inexplicably sending out confidential data.

Additionally, a variety of other methods are commonly used by host-based security products to shield applications from vulnerabilities lurking beneath the surface. This can include marking stack and heap memory addresses as nonexecutable, or randomizing memory addresses returned by memory-allocation routines. This increases the level of difficulty — and in some cases might make it impossible — to exploit buffer-overflow vulnerabilities.

Another type of host-based protection, commonly known as behavior analysis, intercepts and inspects the various system calls requested by applications to enforce restrictions based on policies. A variation to this approach involves loading an application in a virtual machine emulator, which allows instructions rather than system calls to be intercepted and analyzed before execution. This approach can be used to analyze every instruction executed by the application, rather than relying on system calls with limited visibility to piece the bigger picture together.

Despite host-based protection mechanisms being notoriously difficult to configure and use in enterprise networks, they represent some of the best approaches available. But organizations implementing such protections remain at risk, because these security products provide zero-day protection only at the application layer and not the operating system kernel.

This leaves customers with a false sense of security. A skilled adversary can gain access to the network by exploiting vulnerabilities in the kernel.

Any product touting zero-day protection and application-layer security must extend the same level of security to the operating system.

Although no security product on the market today can protect the entire operating system from every vulnerability, recent virtualization and hardware advances make it possible to build the next generation of security technology directly into virtual machines. More important, by creating a trusted and security-conscious virtual-machine monitor or hypervisor, it will be possible to achieve greatly increased levels of visibility.

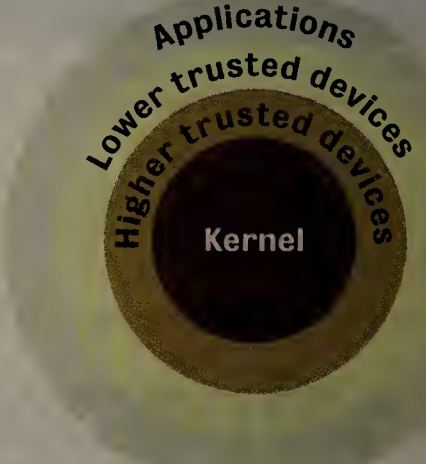
As one of many possible scenarios, virtualization appliances could be built and deployed that allow one or more servers to operate concurrently while the security software operates beneath and provides the protection necessary. With the security software positioned lower than the operating system, vulnerabilities in the operating system can no longer compromise or circumvent the security product's ability to function. Furthermore, these vulnerabilities could be detected easily and prevented.

A solution such as this would provide greater protection than what is currently offered, achieve cost savings by consolidating critical servers and eliminate the need for additional security software. Although this approach demonstrates one way of securing enterprise servers, similar concepts could be applied to protecting the user as well.

Zielinski is a security engineer and member of Arbor Networks' Security Engineering & Response Team.

Rings of protection

Hierarchical protection domains — often referred to as privileged rings — protect the operating system from faults and general instability. A ring is a logical division of hardware and software components that are designed to perform dedicated tasks within the operating system.



The division is typically based on the degree or level of privilege, namely the ability to make changes to the platform. For example, the inner ring encompasses the most critical, privileged components in the operating system. The outer ring is the least privileged and is typically reserved for applications. The intermediate rings have decreasing levels of privileges and are commonly reserved for device drivers.

Got great ideas?

Network World is looking for great ideas for future Tech Updates. If you're got one, and want to contribute it to a future issue, contact Editor in Chief **John Dix (jdix@nww.com)**

_INFRASTRUCTURE LOG

_DAY 75: These cables are everywhere!! Connecting underutilized servers to more underutilized servers. Our energy usage is out of control!!

_DAY 77: I found a way out of this mess: the super-efficient IBM BladeCenter® It helps us manage power and cooling usage with intelligent Cool Blue™ technology. And with its new Quad-core Intel® Xeon® processor, we won't have to sacrifice performance for efficiency. So out with cables, in with blades.

_DAY 79: Gil's stuck under the ball. Tried calling his wife. Turns out the photo of his family came with the frame.

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GEARHEAD

Mark Gibbs

A look at 2D bar-coding

Have you noticed over the last few weeks in the dead-tree version of *Network World* there has been a section that displays a curious pattern of dots and invites you to direct your cell phone's Web browser to http://wap.connexto.com?

That dot pattern is a proprietary 2D bar code format developed by Nextcode called mCode (www.nwdocfinder.com/9830). 2D bar codes are much like regular 1D bar codes except that they encode data in (du-oh) two dimensions.

2D bar codes . . . are typically captured and read by a camera.

The advantages of 2D bar codes (also called stacked symbology or multi-row codes) are that they support a broader range of data representation and a greater data density than 1D bar codes. On the other hand 2D bar codes can't be read by regular laser-scanning systems — they are typically captured and read by a camera. And what common devices have cameras? Cell phones.

The Connexto software, which supports a wide range of cell phones, is available for free from Nextcode, and the supported cell phones (www.nwdocfinder.com/9831) include models from LG, Motorola, Nokia, Samsung, Sanyo, Sony Ericsson and Siemens.

Once you have registered on the Connexto site (also free) you can click on the Code Creation tab and generate mCode "codes" as bitmapped or Encapsulated PostScript images. Note that the Connexto site requires that you run Internet Explorer because the mCode code generator is an ActiveX control.

Committed Firefox users and the entire Macintosh community are excluded from the fun, which is obviously not necessary as the generator software could easily have been server-based and (ideally) use an AJAX client side or, less easily (but potentially more sexily), implemented as a Flash movie. Of course, the guys at Nextcode forgot to ask me so what can you expect.

While I'm at it, let me digress for a moment and point out something that should be blindingly obvious: Any company that limits its market by artificial and unnecessary technical constraints is making a big mistake. While you might develop a following you will always be vulnerable to losing out to any competition that addresses a broader market even if they have an inferior product.

Anyway, the content of a code can be a URL, an SMS message, contact data or an auto-dial telephone number. To use a code, whether it is printed on something or shown on a display, you simply point your camera at it. Once the image is acquired and decoded by the Connexto software it will ask if you want to allow the cell phone to perform whatever action is called for. You also can save the code for later using the Connexto software.

The mCode format has some interesting qualities: It can be read in any orientation and at fairly large angles from the normal. You can change the overall size of a code but not its aspect ratio, and the recommended minimum resolution is around 20 dots per inch, which ensures that most cell phone cameras can get a full frame image.

You might think that RFID will render 2D bar codes obsolete but in cost-sensitive applications (such as in magazines), in harsh environments (say, pipe labels in a chemical plant), or where distance is a factor (for example, on billboards) they will always be effective.

Gibbs can't resist poking at technology. Tell him what you'd like to know more about at gearhead@gibbs.com.

Keith Shaw

COOLTOOLS

Wireless Philadelphia? Most of the time

I spent a couple of days last week in Philadelphia — not because I had a hankering for cheese steak (although it helped that I could get some while I was down there), but rather to see whether the new citywide Wi-Fi rollout really was all it was cracked up to be (see story, page 32).

So along with my video producer, Jason, I went down to Philly to check out the tourist hot spots and see if I could connect to the wireless hot spots as well (go to www.networkworld.com/video to see the video results of our Philly trip). After a rather nightmarish journey (gotta love air travel these days), we learned some lessons about the current state of the Wi-Fi Philadelphia project:

Thought 1: Coverage in wide-open spaces seemed very good. In every touristy location that we visited, we could spot the "WirelessPhiladelphia" SSID and get connected to the wireless signal. Oddly, I couldn't get connected near the U.S. Mint building (that's good, I suppose).

Thought 2: Free, sort of. In some of the major touristy areas, I could see the WirelessPhiladelphia SSID, but after I connected and opened the Web browser, I was redirected to an EarthLink page that asked me to log on and register. I could still connect for free, but after a registration and logon procedure.

Thought 3: Still have to pay to play in other spots: When we went to South Philly to Geno's Steaks for our cheese steak lunch (wiz without — it's a Philly thing), the wireless network from Earthlink asked me to buy a one-day pass or sign up for longer service — I wasn't given the free option. It's possible that this location wasn't included in the overall free areas.

Thought 4: There's lots of other wireless out there. There were no locations in Philadelphia where I couldn't find other wireless networks — some secured, some not. This isn't totally unexpected, as wireless networks have been around for so long now. I'm still surprised at the number of unsecured networks, although in some cases it was nice to connect to an area where the WirelessPhiladelphia signal wasn't strong.

Thought 5: In-building coverage not there yet: This isn't a cheap shot, but rather a note that in order to get in-building coverage, you'd probably have to sign up for the Earthlink residential offering ($20 per month, or $10 per month for low-income residents) to get a signal booster.

Thought 6: Tourists really don't use wireless. I didn't spot a lot of people with their computers, and the few times I did see them, they were at a coffee shop or other food establishment that already offered free Wi-Fi on their own networks. In this case (like at Cereality in West Philadelphia or at the Mug Shots cafe near the Eastern State Penitentiary), the cafés network signal was stronger (and download speed seemed faster) than that offered by the metro-wide network.

The bottom line? If you're a resident of Philadelphia, you shouldn't have any problem getting connected to the new Wi-Fi network, it just becomes a matter of in-building coverage, pricing and, most important, your need for checking e-mail outdoors while visiting the Liberty Bell.

Shaw can be reached at kshaw@nww.com. New Cool Tools video every Thursday at www.networkworld.com/video, and Twisted Pair podcast at www.networkworld.com/podcasts/twistedpair.

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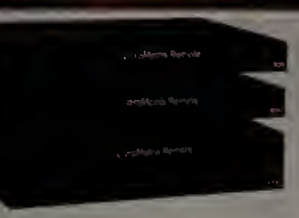

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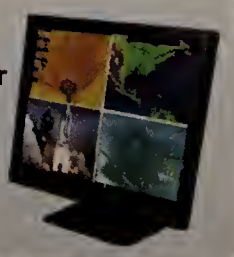

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Fighting software agent pollution

Security, management vendors challenged to remedy agent proliferation

BY DENISE DUBIE

Software agents — long seen as a necessary evil by those securing and managing servers, desktops and other endpoint devices — have proliferated to the point of polluting enterprise environments.

IT managers are fed up with their endpoint devices becoming the dumping ground for bits of vendor code that can slow performance, conflict with services running on the machines and cause huge management headaches when upgrades are needed. Vendors have imposed their agents on customer machines long enough, IT managers say, and it's time to change how servers and endpoints are secured and managed.

"There are risks in putting too many agents on any one device, so I've had to set hard limits on how many agents we send out to our endpoints," says William Bell, director of information security at CWIE, an Internet-based Web-hosting company in Tempe, Ariz. "Some people will tell you agents are botnets waiting to happen, but if you have ever tried to patch thousands of machines without agents, you know agents have their place. It's a judgment call."

Bell is not alone in his efforts to balance the amount of software installed on clients and servers for the sake of securing and managing the machines.

"We are concerned about the performance of endpoints, and the more agents you put on them, the more you take away from performance," says Michael Gruen, IT project manager for Bernalillo County, Albuquerque, N.M. "When you are talking about one tiny agent on one machine, it's not an issue. But when you have many tiny agents across many machines, they add up quickly."

Agent change is afoot

Now that IT managers are getting smarter about agents, vendors are scrambling to accommodate them.

"More vendors are looking at ways to consolidate features or architect their agents in such a way that one agent can handle the tasks of multiple software applications," says Jasmine Noel, principal analyst at Ptak, Noel & Associates. "Vendors are responding to customer complaints that they simply won't deal with so many agents."

Security vendors such as McAfee have been consolidating many features onto a single agent, and management-software makers, such as BMC Software, have developed agentless variations of their monitoring products. IBM and CA are working separately on a common agent architecture across their products that lets customers install just one agent to handle client and server tasks.

Agent overload

Forrester Research says three agents per desktop or server are enough to stretch the limitations of systems administrators. The firm estimates agent deployment, update and configuration could take two to six hours per systems administrator.

Most agree that software agents must be installed to adequately secure endpoints, but the ideal number of agents required on each device is up for debate.

According to Gartner Vice President John Pescatore, every endpoint today typically has at least three types of agents installed: "anti agents" (antispyware, antivirus and so forth); vulnerability-management or patch-management agents, which scan desktops to make sure they are configured appropriately; and systems management agents from companies like BMC, CA, HP and IBM. The latter type often causes the most "agent fatigue" among customers.

Even with Symantec acquiring BindView and Altiris, or McAfee picking up Citadel Security Software, customers should be aware they still could see the same number of agents from the consolidated vendor, Pescatore says.

"The 'keep the bad guys out' agents have to change whenever threats change, but the configuration-management agents want nothing to change, and if there is a change, they will push it back," he says. "The acquisitions are good but don't always mean a single agent. Combining these types of features can be just plain complicated from an engineering standpoint."

Others say the evolution of agent technology among security vendors isn't that much of a change. For instance, industry watchers argue the tax on the endpoint isn't much different whether you have six small, simple agents, each performing a single function, or one large agent performing six functions. Agents themselves are not the root of the agent pollution issue, says IDC Vice President Charles Kolodgy. Instead, problems arise when IT managers are ill-equipped to manage numerous agents with various consoles, making the care and feeding of agents a nightmare, he says.

"Agents offer value. They let you extend your policy outside of your network and control activities on endpoints no matter where they are. But there is a need to reduce the complexity of agents," Kolodgy says. "Security is great, but if you can't manage it, it lapses over time. You have to be diligent and vigilant with the agents that are required for defense in depth. Vendors must provide smart management with their agents."

When it comes to monitoring performance on endpoints, however, the agent discussion takes a turn. Many argue that unless IT managers want to be able to take actions on each client or server, there is no need to place a pesky systems management agent on each device. For instance, appliances from companies like Coradiant promise to collect data from client devices without installing an agent.

"Management vendors offer passive, server-side monitoring and active testing to avoid putting agents on devices," says George Hamilton, director of Yankee Group's enabling-technologies enterprise group. "Because endpoints are changing to include handheld devices, vendors know that an agent on each device is not feasible in the long term, so some vendors like Intel are embedding remote monitoring into the hardware."

Others point out that as operating systems mature, more capabilities will be embedded there to enable management without installing agents. In addition, management vendors continue to work toward standardizing agents across their products. ■

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EarthLink races to deploy mega-municipal mesh

BY SONINA MATTEO

Philadelphia is well on its way to becoming one of the world's biggest Wi-Fi hot spots.

In May, after a 15-square-mile test zone passed muster, the city gave EarthLink the green light to cover the entire 135-square-mile city with a wireless mesh network by year-end.

EarthLink is moving full-speed ahead, adding Tropos Networks access points to light poles around the city, testing and optimizing the network, and building out coverage at a pace of 5,000 potential households per workday. Today, coverage has expanded to 80% of the city.

From a technology perspective, creating a full-blown mesh network across an entire city — from parks to tourist attractions to downtown skyscrapers to residential neighborhoods with brownstones jammed together — presents quite a challenge.

"It was important for people to be mobile and treat the entire city network as one large, unified network, so if they attached in one place they could start surfing the Web and keep the connection even if they went to another point across town," says Jeb Linton, director and chief architect for EarthLink.

"No system in the world had ever been able to scale to that level of mobility in a Wi-Fi network," Linton adds. "So we had a unique architectural challenge to enable this."

EarthLink is building out the network using Tropos 802.11b/g access points, which connect to a complex backhaul system that uses Motorola Canopy line-of-sight radios and Alvarion BreezeAccess VL non-line-of-sight radios.

As with any project of this scale, problems have emerged and original planning assumptions have had to be adjusted. For example, EarthLink has had to double the number of access points per square mile, from an original estimate of 20 to the current figure of 42, to provide the requisite level of coverage. In addition, after the access points are installed, there's a four- to six-week optimization process designed to maximize coverage.

"We are using our tools to drive testing, and we use customer feedback to improve coverage. We don't think we'll ever get to 100% coverage, but we are very happy with 90% until technology, both on our side and on the user's side improves," says Donald Berryman, president of EarthLink Municipal Networks.

Even with 42 access points per square mile, customers who want in-home or in-building coverage need a special, high-powered Wi-Fi modem from Ruckus Wireless or PePLink. EarthLink sells or

Timeline: mesh madness

March 2004 — Dianah Neff, CIO of Philadelphia presents Briefing Paper to Mayor John Street about a possible city-wide wireless system.

May 2004 — Mayor Street formally announces that the city of Philadelphia will be a wireless city.

June 2004 — Wi-Fi pilot study begins in Love Park Philadelphia.

August 2004 — Wireless Philadelphia Executive Committee appointed.

March 2005 — The Wireless Philadelphia non-profit organization is founded by Mayor Street (with 501c3 status).

April 2005 — The Wireless Philadelphia Executive Committee announces a plan to lay the foundation for Philadelphia as a Digital City. It also has a preliminary plan to make broadband affordable for every resident, business and visitor to the city.

May 2005 — Pilot study areas of at least one dozen hot spots provided by various sponsors.

October 2005 — EarthLink is formally selected to build, test and manage a 135-square mile Wi-Fi network in Philadelphia.

May 2006 — Philadelphia's City Council approves the initiation of the build-out of the "Proof of Concept" area by EarthLink.

July 2006 — Greg Goldman hired as CEO of Wireless Philadelphia.

December 2006 — EarthLink begins POC trials in North Philadelphia.

ıetwork in Philadelphia

rents the units and offers them for free to customers who sign a one-year contract.

Despite the technical issues, EarthLink is confident it will be able to scale out mobile broadband across the city, as well as turn a profit on its $13.5 million investment. The city is excited about the potential benefits, which fall into several categories:

1. Economic. At the core of the project is the expectation of increased economic development through the availability of wireless Internet access, according to Philadelphia CIO Terry Phillis.

2. Tourism. "We hope for enhanced tourism opportunities and to have the whole city identified as a hot spot for anyone who would come here," Phillis says.

3. Municipal use. The city foresees inspectors and other mobile city workers using the Wi-Fi network to communicate back to the office. "This technology is a perfect opportunity for them to use the Internet, with communication back to the centralized system, anyplace they go in the city," says Varinia Robinson, the city's director of technology.

4. Web access for low-income families. 25,000 half-price accounts have been earmarked for welfare-to-work and low-income qualifying households. The basic retail price for the Wi-Fi broadband Internet service is about $20 per month, and Wireless Philadelphia, the nonprofit agency created to help administer the program, offers the service for $9.95 per month. In some cases, the low-cost broadband access will be bundled with laptops and training paid for by community-based organizations," says Wireless Philadelphia's CEO Greg Goldman.

5. Increased competition for residential broadband. EarthLink is challenging Verizon and Comcast in the residential broadband market, and city officials predict that this competition will bring rates down for everyone.

Network World plans to provide ongoing coverage of Philadelphia's ambitious Wi-Fi project. This story focuses on the buildout of the network, but future stories will cover how well the city is meeting the goals it has laid out. We're also looking for feedback from residents, tourists and visitors to the city. If you'd like to share your wireless experiences, go to www.nwdocfinder.com/9822.

Fall preview

January 2007 — Build-out of the POC area in North Philadelphia is completed; Testing and Monitoring of this POC area officially begins.

March 2007 — Testing and results analysis completed in the POC area by EarthLink engineers and with local customers.

May 2007 — Wireless Philadelphia approves the Municipal Wi-Fi 15-square mile POC area. Build-out begins.

June 2007 — Philadelphia Wi-Fi coverage grows to 46.5 square miles. Approximately 500 qualified low-income working people are in line to receive free computers and service and support bundles.

July - August 2007 — Earthlink starts its "EarthLink Wi-Fi" marketing campaign, which will continue throughout the summer. Varied campaigns expected to continue into the fourth quarter.

September 2007 — Full market deployment of Philadelphia's 135-mile citywide Wi-Fi network expected.

October - November 2007 — EarthLink to complete full market deployment testing/evaluation, and adjustments/optimization of the network.

December 2007 — Final acceptance of full market deployment by the city of Philadelphia and Wireless Philadelphia. All 135-square miles of the city to have coverage, including the 23 free zones and parks designated for free outdoor Internet access.

That's how EarthLink rolls

Wireless mesh deployment moves at rapid pace, despite architectural and topographical challenges

BY SONINA MATTEO

Once Philadelphia gave EarthLink permission to move ahead with the citywide rollout, the ISP wasted no time. EarthLink had leased and built out towers so it could deploy nodes quickly once the proof of concept was approved.

Crews were dispatched to accelerate the installation of access points on light poles. The Philadelphia Streets Department preinspects light poles for the access points' usage and approves the selection of poles; then EarthLink deploys the Tropos Networks units and goes through an optimization process, and the city does a final inspection for safety and mounting.

Within 15 days of getting the green light Earthlink had doubled network coverage to 30 square miles. Today, 80% of the city is covered, and Earthlink plans to have all 135 square miles blanketed with wireless signal by the end of September. Additional network optimization has to be completed, and Earthlink expects to get the city's official acceptance by year-end.

EarthLink is building a layered network that starts with the Wi-Fi mesh at the street level that the company says will deliver 1M to 3Mbps data rates to customers. The Tropos 802.11b/g access points contain built-in routers and use point-to-multipoint radios. That creates the mesh, says Jeb Linton, director and chief architect for EarthLink. The Tropos units dynamically select the best wireless channel to avoid congestion and interference.

At the backhaul or capacity injection layer, data is fed into the mesh at rates of 20M to 50Mbps by Motorola Canopy radios and Alvarion VL radios on the tops of buildings and towers. In some areas of this first layer of the backhaul system, EarthLink is running fiber.

The tower tops are connected by either fiber optics or line-of-sight microwave communication at 200Mbps-to-1Gbps data transfer rates.

EarthLink already has a major point of presence (POP) in Philadelphia, which connects to the ISP's national backbone network. The local POP contains the service gateway, which manages every user session and all details of the user experience.

In addition, Philadelphia's wireless network was required to adhere to an open-access design. EarthLink deployed a back-end authentication system that lets subscribers from other service providers be on the network, and lets those service providers control or manage their subscribers. According to EarthLink, this is done via Radius Proxy Services.

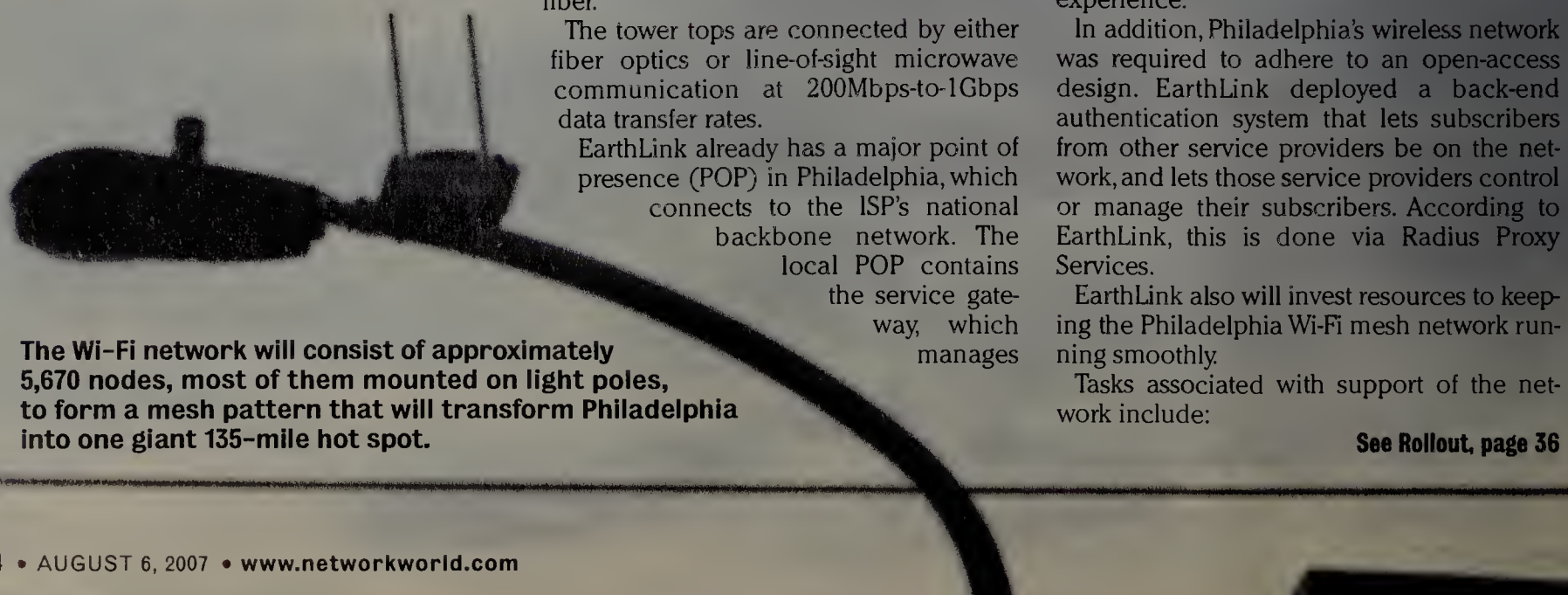
EarthLink also will invest resources to keeping the Philadelphia Wi-Fi mesh network running smoothly.

Tasks associated with support of the network include:

See Rollout, page 36

Philadelphia — One giant Wi-Fi hot spot

Philadelphia will soon be the first "large" city in the United States to offer Wi-Fi Internet service across an entire city. EarthLink, an ISP and builder of the system, is using wireless routers to create a mesh of wireless signal coverage across the city.



The Wi-Fi network will consist of approximately 5,670 nodes, most of them mounted on light poles, to form a mesh pattern that will transform Philadelphia into one giant 135-mile hot spot.

IBM

_INFRASTRUCTURE LOG

_DAY 74: We're stuck dealing with multiple interfaces and apps. We can't find the relevant info we need. I feel like it takes six of us to do one person's job.

_Six Gils? They better not all have to sign my time sheet.

_DAY 76: I'm freeing everyone up with IBM WebSphere® Portal. It's the fastest and easiest way to integrate everything for seamless access to our info. It gives each of us a single, customizable interface. And running it on a System p™ with virtualization technology saves us time and energy.

_Back to one Gil. There's so much less of him to love now.

WebSphere. Portal

View the WebSphere Portal Demo at:
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continued from page 34

• Ongoing upgrades and new Wi-Fi releases: Because Wi-Fi is a relatively new and improving technology, the standards body comes out with new releases regularly. In addition, damaged nodes need to be replaced.

• Installation. EarthLink has contracts with installers and bucket truck operators that do the electrical and mechanical work at the sites.

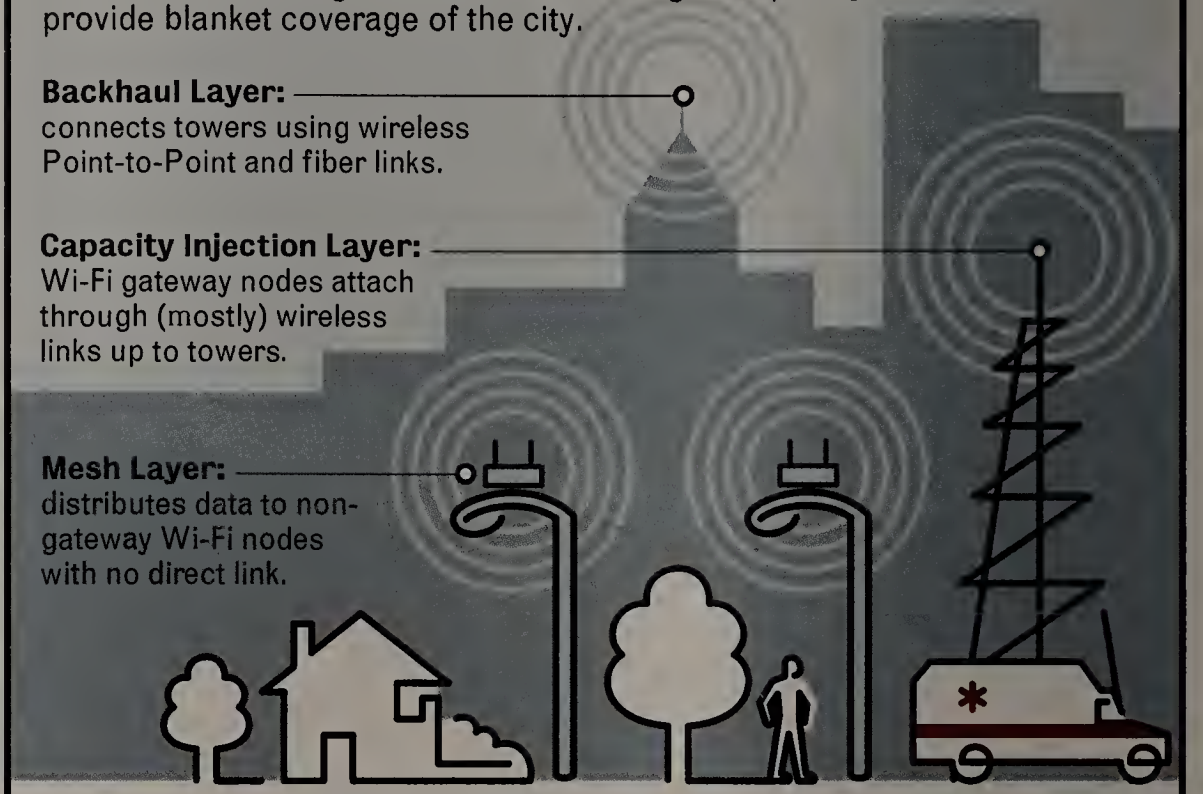
• Capacity analysis. EarthLink has a staff on a national level that does ongoing capacity analysis. Links are monitored on every piece of equipment across the country and on all the Wi-Fi networks EarthLink runs. Alarms go off when capacity limits are reached. This lets the WAN planning team know when an upgrade to a circuit is needed or an additional circuit is needed to supplement the bandwidth.

• Network management. The Tropos Element Management System and EarthLink's customized Central Network Management system are managed by teams in Atlanta and Pasadena, Calif. Call center workers also have a view of the network through these systems.

• Support. Technical support, call centers and customer support are separate functions within EarthLink. There is an escalation path and different tiers of support. Problems affecting multiple customers in one zone or sector get escalated to the nearest technical-support team that can do radio readings and talk to the customers directly. Philadelphia does not have a call center.■

EarthLink's multi-layered architecture

EarthLink is building out the network using multiple layers in order to provide blanket coverage of the city.



Access Layer: provides blanket connectivity across the coverage area to all user types and services.

Wi-Fi inside/out

To access the network outdoors, users can connect to the Internet using 802.11b/g compliant wireless interface adapters (cards), but they will need to sign-on at EarthLink's landing page first and create a user account.

For in-home coverage users need a more powerful CPE device (customer premise equipment/Wi-Fi modem) attached to their laptop in order to access a signal. EarthLink provides the modem when someone subscribes to the service for one year.

_INFRASTRUCTURE LOG

_DAY 68: Our IT environment is completely rigid! We can't align IT to meet the larger business needs. I told Gil we need an SOA so we can be proactive for once.

_Gil brought in contractors and made the entire office "modular" and "flexible." Gil, I am not a hamster.

_DAY 70: This should free us up: IBM SOA solutions built with IBM WebSphere®. Now we have the hardware, software and services for a flexible IT infrastructure. IBM has helped 3,600 companies implement an SOA. And getting started was easy. Now our business is built for change.

_I don't have to crawl with my coffee anymore. It's great.

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Cheese steak, Liberty Bell, Wi-Fi

EarthLink's marketing campaign targets residents, businesses, tourists

BY SONINA MATTEO

EarthLink is investing an estimated $13.5 million to build out Philadelphia's Wi-Fi network. The company is also paying revenue-sharing fees to the nonprofit agency Wireless Philadelphia to support the city's efforts to provide low-cost Internet access for low-income users.

Will EarthLink recoup this investment? According to Thomas Cooper, general manager at EarthLink Municipal Networks in Philadelphia, the company is counting on signing up as many residential and business customers as possible.

"We have several interesting strategies to get us on the right path and to hit our penetration targets. There's going to be a large push for us in the Philadelphia marketplace this summer," Cooper says.

Cooper adds that the marketing message "revolves around how the service is used at home, but the added value is that it can be taken with you. It has mobile value. It can be used in almost all public and private spaces in the city."

Customers can sample the service without having to sign a long-term contract. EarthLink is offering a one-hour pass for $3.95, a one-day pass for $7.95, and a three-day pass for $17.95. One month of service is $19.99. The one- and three-day passes will target tourists and occasional visitors to the city from the suburbs.

According to Gartner analyst Phil Redman, the value of mobility may be limited to a small number of customers. "I don't think that's going to be enough differentiation," Redman says. "Not everyone cares about mobility in these markets. You also need to look at PC and notebook penetration in many inner cities, and that is rather low — so basically EarthLink and incumbents are going after the same market with similar pricing."

Redman adds, "I think generally cities that target specific areas and zones for wireless coverage will be successful, and if they look at it more for adoption by small and medium-sized businesses, individuals and the municipal workforce at a low-price point, that it will be successful."

For Esme Voz, founder of MuniWireless, the question is more about what cities will use it for, beyond Internet access. "If they spend money on the network, or get a provider like EarthLink to spend money, and all they use it for is Internet access, it's a waste of everyone's money. If they use it to save money on telecommunications, make the municipal workforce more efficient and deliver better services to residents through the Wi-Fi network, then it's not a waste of time and money."

In terms of EarthLink's long-term goals, Cooper says, "We would like to see 40% to 45% of the residential homes become customers, and the rest be government, business and occasional use."

EarthLink will have to compete against incumbents Verizon and Comcast for that broadband dollar, however. Less then half of the 600,000 households in the city have Internet access, so there's plenty of growth potential. And EarthLink's $20 Wi-Fi service is less expensive than Comcast Cable, at $33 per month, and Verizon's DSL service, at about $34 per month.

Verizon is fighting back with a promotional offer of 768Kbps service for $14.99 a month for the first year, or 3Mbps service for $19.99 a month for the first six months.

"That's the good thing about it," Voz says. "The cities are using municipal Wi-Fi to create a more competitive market, and if this happens, then the cities have achieved their goal. The U.S. has a broadband duopoly, and that is driving cities to create a more competitive atmosphere."

Another possible revenue source for EarthLink is the wholesale or reseller channel. Under the terms of its agreement with the city, EarthLink is required to provide the Wi-Fi network as an access layer for other service providers. Reseller or wholesale agreements have been signed with DirectTV, PeoplePC, Vonage and Drexel University. In June, EarthLink also signed an agreement with GetConnected, a commerce-engine provider that will let merchants sell directly from a kiosk or cash register and activate EarthLink Wi-Fi orders at the point of sale. ■

_INFRASTRUCTURE LOG

_DAY 53: We're flooded with information. Data. E-mails. Video. It's all trapped in unconnected systems. It's practically inaccessible. We can't find the right info!

_Gil says he needs a hand. Alas, I'm afraid of heights.

_DAY 54: The answer: IBM solutions for leveraging information. They can help us build an infrastructure to bring info together, up and down the stack. IBM middleware integrates structured and unstructured info across silos for a unified view. And IBM servers and storage give us virtualization for improved utilization.

_Better decisions with our info. On two feet, no less.

Information Management

Download the leveraging information white paper at:
IBM.COM/**TAKEBACKCONTROL**/INFO

Philly pushes for low-cost Wi-Fi for its poorest residents

City sees Web access as important educational and economic tool

BY SONINA MATTEO

Of Philadelphia's 1.5 million residents, 23% live below the national poverty threshold. The city over the years has tried numerous initiatives and programs that support improvements in education, employment, health and other life opportunities.

Its latest effort is Wireless Philadelphia, a nonprofit organization started by Philadelphia Mayor John Street's office in 2005. The initiative's mission is to help Philadelphia neighborhoods gain high-speed Internet access through an affordable digital-inclusion program that helps economically disadvantaged citizens — as well as businesses, schools and community organizations that are not online — get connected with hardware, software, technical support and training, and wireless broadband Internet service.

"We have learned through research that a lack of Internet technology is the basis for the digital divide. We don't expect Internet access alone to be the panacea for all the social problems and challenges that the city faces as we look to the future. But by the same token, we know that people depend on access to information and employment opportunities and educational options in today's world," says Greg Goldman, Wireless Philadelphia's CEO.

"This technology has huge potential to really level the playing field in Philadelphia. With access to technology [people] have more options and access to more content," says Sallie A. Glickman, CEO of the Philadelphia Workforce Investment Board, an organization that released a study earlier this year about the state of the city's workforce. "Technology is a great leveler; especially with content for distance learning now available, skills could be delivered through the Internet," she says.

The study found that although educated workers are driving Philadelphia's renaissance, 60% of the city's adult population have low levels of literacy, and more than 80,000 residents between the ages of 25 and 45 have enrolled in a college but never graduated. In addition, according to the report, a significant portion of Philadelphia's population is isolated geographically from work locations and can't access the online educational and employment resources that could connect them to a job.

"There is not one solution or one group that owns the solution, but clearly, with Wireless Philadelphia [a solution] is more possible. [The technology] provides a host of potential," Glickman says.

Wireless Philadelphia has been given 25,000 half-price accounts earmarked for households that qualify for welfare-to-work programs and other low-income households. The basic retail price is about $20 per month, but the organization offers the service to its target customers for $9.95 per month.

At the outset, Wireless Philadelphia provides supplemental training, administered through its community partners, to teach people how to use the Internet to its maximum potential. Orientation and training take place when residents sign up through such groups as the community-based Employment, Advancement and Retention Network (EARN) centers or the Philadelphia Workforce Development Corporation, which are part of the city's welfare-to-work program. The training is a standard program offered by one of Wireless Philadelphia's partners. Technical support from EarthLink, the program's ISP, is available for Wireless Philadelphia customers.

EARN centers, which handle case management, job placement and other services to help welfare clients become self-sufficient, are picking up the monthly tab for some residents (on an incentive basis). In addition, Wireless Philadelphia partners are picking up the bill for a package that includes a refurbished laptop, one year of Internet access, and technical support and training. Five welfare-to-work clients received this bundle on June 14.

The Wireless Philadelphia business model

By the end of fiscal year 2007, Wireless Philadelphia will have raised more than $500,000 from public agencies, foundations, other nonprofits and individuals.

Revenue from the half-price Internet-access accounts goes directly to EarthLink, but Wireless Philadelphia will receive a 5% share of the revenue from all EarthLink accounts starting in the third year of the program. In the program's first two years, Wireless Philadelphia is receiving $1 million per year in operational support.

Matteo is an independent wireless/mobile technology writer in Lumberton, N.J. She can be reached at soninamatteo@tech-research services.com.

Go online to see video from the streets of Philadelphia.
www.nwdocfinder.com/9823

IBM

_INFRASTRUCTURE LOG

_DAY 78: Our energy costs are staggering! We're spending more to power and cool the hardware than we did to buy it in the first place.

_It's too darn hot. Gil moved the entire data center to the Arctic Circle. Gil, this commute is ridiculous.

_DAY 81: Here's something better: IBM energy management solutions. IBM services helped us identify and tackle our power and cooling inefficiencies. The IBM System z™ server's high utilization and unique design mean we're not feeding our old, power-hungry environment.

_Gil doesn't want to hear it. He says he's snow deaf.

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their own logical data center, one situated on the other side of the United States.

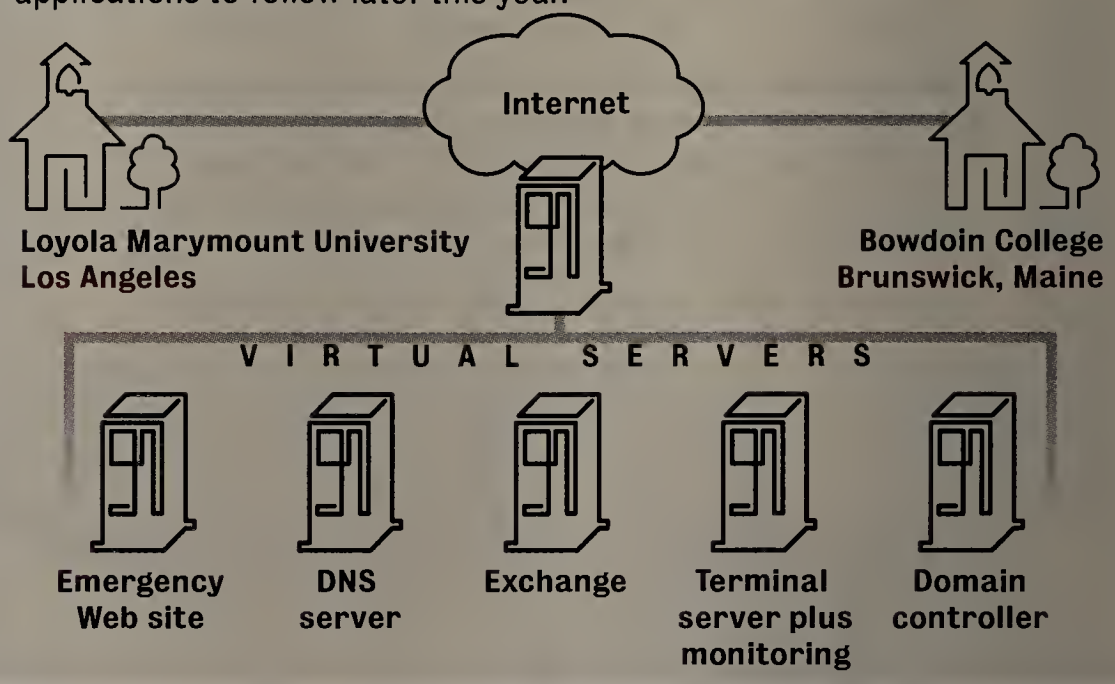
A recent study (www.nwdocfinder.com/9854) found that almost 30% of business are completely unprepared for disasters or crippling emergencies.

The first step has been to run each other's emergency Web site, Exchange e-mail and DNS servers. This summer and fall, both schools plan to roll out other virtual servers (see graphic). These new servers will support replication of Microsoft Active Directory, programs such as NTI Group's Connect-ED (www.nwdocfinder.com/9855), which can record an emergency voice message and distribute it via e-mail, cell phone, paging, instant messaging and other media; and enterprise applications, such as learning management systems, payroll and student-information systems.

"This is a dandy example of how to do things properly," says Michael Karp, senior analyst for Enterprise Management Associates, a technology research company in Boulder, Colo. Karp covers storage issues and has been advocating cooperative disaster recovery, especially for small businesses. "The IT issues are the same for both institutions, around privacy, data availability, records management and all those nitty-gritty details. And it will cost LMU about the same amount to supervise as it will cost Bowdoin, because they have the same infrastructure."

Bi-coastal disaster recovery

Two schools are building similar virtualized infrastructures to mirror key systems for one another in case disaster strikes. Initially, they are replicating emergency Web-site and e-mail services, with other applications to follow later this year.



Keeping costs low

So far, the initial work has been fairly inexpensive, according to numbers compiled by the schools: about $35,000 from June 2006 to June 2007 for each institution, mainly in staff time of about 15 to 20 hours per month. That includes a couple of cross-country plane trips for selected IT staff from both schools. The schools are projecting about $54,000 more in spending for each institution, for blade servers, a terabyte of network storage, software licenses, new applications, labor and other expenses. That compares with an estimated $100,000 per month, or $1.2 million per year, for a commercially hosted disaster-recovery hot site, according to figures from the two schools. That adds up to an ROI of more than $1.1 million yearly.

Although there have been earlier efforts at disaster-recovery collaboration, none seems to have the ambition of the Bowdoin-LMU project. Two small neighboring Massachusetts colleges, Babson and Franklin W. Olin College of Engineering, have been sharing (www.nwdocfinder.com/9856) off-site storage and tape backup. In the wake of the devastating 2005 hurricane season, spearheaded by colleges and universities in the Gulf region, more institutions have been trying to add long-distance into their disaster-recovery plans (www.nwdocfinder.com/9857).

The two schools can't get much farther apart in distance and culture: Bowdoin has about 1,700 students in rural Maine. LMU has about 8,700 students in urban California. Yet the differences have proven to be complementary strengths rather than stumbling blocks.

The seed for the idea germinated a few summers ago when the schools' CIOs — Mitch Davis at Bowdoin and Erin Griffin at LMU — first met at an academic computing conference. At a session on disaster recovery, Davis argued that smaller institutions could sidestep the crippling costs of disaster recovery by working together.

"We just started putting together how we could this," Griffin says. "We were kind of 'skunk-working' it for a while, because it didn't have the sex appeal of other projects. Until after Katrina."

Planning and decision making started in earnest in summer of 2006. The initial decision to use VMware as a foundation was quickly followed by other infrastructure choices needed to support the initial round of essential services, from DNS hosting to VoIP. "That is a pretty huge undertaking right there," Griffin says.

Bad first impressions

"It seemed really daunting when we first started," says Dan Cooke, LMU's director of systems administration. "But as we worked together, it started seeming much more tangible and realistic."

One reason was the quick realization that each school brought expertise that could benefit the other in deploying new products and technologies. "They had not done anything with virtualization at all," recalls Tim Antonowicz, systems engineer at Bowdoin. "We were over 70% virtualized (www.nwdocfinder.com/9858) at the time. I flew out to California to get their feet wet with VMware. Now, they're almost as involved [with it] as we are."

When Bowdoin switched over to Exchange e-mail so the schools would have similar e-mail infrastructures, LMU staffers were their guides and advisers. "We implemented that pretty quickly," Davis says. "When we launched Exchange, we had just eight calls to our help desk."

The shared experience of the infrastructure components then forms a kind of informal help desk, where managers and staff can reach out for advice, brainstorm and troubleshoot problems with their colleagues a continent away. "I can send an instant message to Dan and say, 'Have you seen this [problem]?' and he IMs back, 'We saw this three weeks ago, and here's what we did,'" Antonowicz says. More formally, teams from both schools meet every Tuesday via videoconference to review the project, identify problems and plan the next steps. The discussions and decisions are recorded for later viewing by others.

"It's about developing a relationship, more than a business agreement," Davis says. Relationship-building was vital in overcoming what he sees as the main obstacles in the project: fear and potential distrust. "All of sudden, stuff is moving off your campus and out of your control," he says.

There is friction at times, often over speed of implementation and priorities, Davis says. "Erin wanted a particular project done right away,"

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_INFRASTRUCTURE LOG

_DAY 25: Our ad hoc security solutions are not enough. We can't handle new threats. We're always playing catch-up. We're leaving ourselves vulnerable and exposed.

_Gil's had a security epiphany: high-powered lasers. They're everywhere. I keep zapping myself as I type.

_DAY 26: I'm taking back control with a security solution from IBM. Their security service experts can help us assess our needs. IBM Tivoli helps us monitor and respond to threats while managing access to our information. And the IBM System z™ server's encryption and multilevel security features are legendary.

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exchange's vice president of quality assurance. "Accume is the internal auditor, and they're here all the time," he says, explaining that the stock exchange builds its regulatory compliance around the COBIT framework. "We have a timeline of events, and I'm the liaison."

About once a month, the IT audit process starts up afresh, examining whether such processes as patch management and vulnerability assessment are in place. Internal auditors are valuable "because you can be so close to a process every day, you can miss a hole that was created," Donnelly says. "So you need them. I want to know if there's a problem so it can be fixed."

Donnelly says auditors seeking to make a determination about compliance often want to know everything they can about an IT project, from the first requirements to the final installation. Automating change-control processes in software can be helpful, he notes, adding that his department has used Serena Software's TeamTrack for application life-cycle management.

Regulatory soup

That's just SOX, however. There are an almost untold number of other regulations, such as the Gramm-Leach-Bliley Act for financial-data privacy, and California's Senate Bill 1386, which has had an outsized impact that extends far beyond California in propelling companies to disclose data breaches publicly.

Making the grade in regulatory compliance is something the Fairfax County Public School district in Virginia is expected to do.

For Ted Davis, the district's director of enterprise information services, the two regulations that figure most prominently are the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act (HIPAA).

"FERPA is the primary federal regulation concerning student records, and who has access to these records and can see them," Davis says. HIPAA is the federal regulation that mandates privacy and security of medical records.

HIPAA is relevant to the Fairfax school system because it provides medical assistance — such as therapy and emergency care, when necessary — to the 164,000 students in the county's 200 schools.

One of the main reasons Fairfax began planning for automated user provisioning and password management five years ago — the $1 million project based on Novell's identity-manager software began its rollout this spring — was to help meet FERPA and HIPAA requirements for data privacy, access control and auditing. "This should reduce our risks and be much more manageable and less cumbersome than our old, manual system," Davis says.

HIPAA is a top concern for Mike Lecuyer, enterprise network systems and security systems compliance engineer at insurance provider Blue Cross Blue Shield of Massachusetts.

"Some of the compliance called for in HIPAA is vague, but you need certain controls, such as audit controls," Lecuyer says. He adds that he favors automating compliance reports and monitoring where it seems feasible, and to that end his organization's servers run software-based access-control templates from NetIQ that monitor for password changes and enforce the access controls called for by HIPAA. "I think you've got to automate this," Lecuyer says.

Try something new

Many banks say they've been spurred to make certain security changes because of regulation, particularly the Authentication in a Banking Environment guidelines that took effect this year. The guidelines were issued by the Federal Financial Institution Examination Council (FFIEC), a multiagency group representing the Federal Reserve System, the Federal Deposit Insurance Corp. and other institutions. They compel banks to use more than just simple passwords in online banking and funds transfer for customers. The FFIEC is giving banks leeway this year to try a variety of approaches.

To meet this new regulatory demand, Old National Banc, a $8.2 billion bank in Evansville, Ill., with online services, has distributed Vasco Data Security's dynamic-password tokens to business customers for two-factor authentication. Old National also has added Corillian Security's Intelligent Authentication service for identifying online customers through combined factors, such as IP address, time of day and browser setting. It also offers users an authentication of the validity of the bank's site through a visual-identification process.

These changes were carried out largely "to meet the FFIEC guidelines," says Becky Sandgren, assistant vice president and senior project manager in the bank's e-business division.

In some instances, the use of technology products and services is strictly overseen by government regulators in the United States and abroad, who set standards for data-use, storage and transfer policies.

At airline carrier Air Canada, for example, Canada's data-privacy regulations prohibit storing airport public-area camera feeds, although camera feeds in private facilities can be stored, says Thor Hoff, IT infrastructure project manager at Air Canada's Toronto operations center. "Any video monitoring in public areas is always done in real time," says Hoff. "We have to follow government regulations." ■

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he says. "For us, it sits on the next stage below. We've had some strong talk about doing this faster. She has a project manager who's always telling us, 'You have to get moving on this.' And that's not a bad thing."

"This is not something that pops up and happens," Davis says. "It seems kind of organic [in development], but everyone was thinking about how to make things better for the client [the other school] and optimize it to be easier for IT to support."

Davis and Griffin see this project as a template for future cooperation, and not just in higher education. "We're building a methodology for approaching other collaborative IT projects," Griffin says. "That outcome is as important as the hot site itself." ■

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8:30 ROUNDTABLE WITH IT ROADMAP TRACK ANALYSTS
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9:00 FIRESIDE CHAT **John Gallant,** President & Editorial Director, Network World interviews **Kirk Kirksey**, CIO, University of Texas Southwestern Medical Center at Dallas

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BACKSPIN

Mark Gibbs

Making Nicky proud

Last week I discussed IT in terms of a pack of dogs. But, as I concluded, most of us are not animals, so getting ahead in IT is actually a little more complicated than the dynamics of a canine hierarchy. Of course, in some companies, that's only slightly more complicated ...

How do you get ahead in IT? The traditional answer is that you need to put your nose to the grindstone, your shoulder to the wheel and "give 110%!" What utter crap.

This "all for the company" line has become the mantra of the high-tech business. "Want to get ahead? Give up your life! Eat, sleep and breathe your job! Your reward will come in the fullness of time! And here, have a foosball table and free food while you wait!" Yum. Nothing like gourmet pizza and free Evian to make up for no life.

> "Consider the thinking of Niccolò di Bernardo dei Machiavelli."

Nope, if you're smart, and you want to really get ahead, consider the thinking of Niccolò di Bernardo dei Machiavelli (1469 to 1527), who was, among many other skills, the first modern political philosopher.

Politics is often referred to as the second-oldest profession or "the art of the possible." Nicky (as his friends, if he had any, probably never called him) realized that human nature means that success in politics is predicated upon the effective manipulation of circumstances.

Now many people think that Mac (which I also doubt that people called him) was a bit of a bastard, but the truth is that he was a realist. For example, he didn't simply argue, as is often supposed, that the ends always justify the means — he said that the only ends that were justified were those that resulted in stability. If those ends are achieved, whatever means you use are OK.

So if you want to get ahead in IT, I suggest that whatever power plays you make must result in solutions that support and, ideally, actually further the organization — that's what stability means in business — continuance and growth. But given that all organizations are intrinsically dynamic, your opportunity lies in being the guy who solves the problems of dynamism so that business can carry on as desired, if not as planned.

Here's where your boss could well be going wrong. In any sizable organization his responsibilities will have grown to the point where he tends to avoid the possible in favor of the known. That's your opportunity. When he resists anything novel, you establish a case and make it known to all and sundry that you are experimenting before he can shut you down. If you come up trumps (which you will, because you planned it that way, didn't you?), you'll be The Man.

You, of course, will hand him the glory, but you'll also make absolutely sure that everyone knows when it happens that you were the guy who made it happen.

Does this seem devious? Perhaps you should consider it in terms of working for the greater good. If your boss isn't going to drive the corporate IT bus, and you don't take action, you are risking the effectiveness and therefore the viability of the organization. You owe it to everyone, including yourself, to take charge. Nicky would be proud of you.

Gibbs plots and schemes from Ventura, Calif. If you want to know more about his machinations, go to www.gibbs.com/mgbio. He can be reached at backspin@gibbs.com.

NETBUZZ

News, Insights, oddities

Paul McNamara

E-mail etiquette: Thanks or no thanks?

This is a minor matter, obviously, so if you're busy I'd suggest you move on. Here's the setup, which happens to almost all of us, almost every day: A colleague or business associate has answered your routine e-mail request with his or her equally routine answer (let's say you asked for a budget number).

Your original request included the requisite "please" and "thank you," because, well, you weren't raised by wolves. Moments later a reply arrives, and it provides the information you sought; nothing more, nothing less.

Do you in turn send what we're going to call here "the unadorned thanks?" In other words, do you — as many do — reply with only the word "thanks". (Again, for the sake of this discussion, we're presuming you have nothing else to say.)

If your answer is "of course I do, you rube," then you are probably living unaware that the unadorned thanks is considered by some to be gratuitous, at best — remember, you already wrote "thanks" — and at worst, an annoying waste of everyone's time, most notably, mine.

What's the beef? Allow me an all-too-familiar example to illustrate: Public relations professionals are constantly subjecting me to the unadorned thanks. They'll send a story pitch complete with a pre-thank you. I'll answer, "no, thanks." And, almost before I can return my attention to whatever task it had been ripped from to reply, I'll see the PR pro's next message hit my in-box.

Just delete it, you say?

No can do. I just can't be *certain* that it's another unadorned thanks — even though I'd bet the mortgage money — and I've already committed to this conversation, so deleting the reply to my reply unopened seems rude. (No, I don't use the preview pane.)

So I click on the e-mail, curse yet another unadorned thanks and vow solemnly never to write a word about the sender's client, at least not a positive word.

I know I'm not alone on this one. Of course, there are those who will argue that I'm a nit-picking curmudgeon (not the first time). Yet others will argue that you can never be too rich, too thin or too polite.

Some of the latter were on my case last week at Buzzblog (www.nwdocfinder.com/9824).

"You may not be alone, but you should be," writes one fellow who is clearly quite irked by my complaint. "It is simply pathetic how common courtesy has been literally forced out the door by people who are 'too busy' or 'can't waste the time' to accept the 'thank you' message as what it really is — a thank you."

He's just warming to the task.

"So, you get an extraneous e-mail. How much does it cost? In your 'wasted' time, pennies. In terms of the amount of e-mail going over the wire, less. In terms of good will on the behalf of the sender, possibly priceless."

Done? Oh, not by a long shot.

"If you want to be a curmudgeon, be one. I believe we have another name for it, but I'm pretty certain you have readers that are sensitive to such language. Just please don't expect the rest of the world to be the same."

What other name might he have in mind?

There's plenty of discussion about this topic on the blog — including that man's unabridged umbrage — as well as poll results that show a radical divergence of opinion.

Thanks.

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